# PACIFIC FISHERMAN

THE INTERNATIONAL JOURNAL

November 1961



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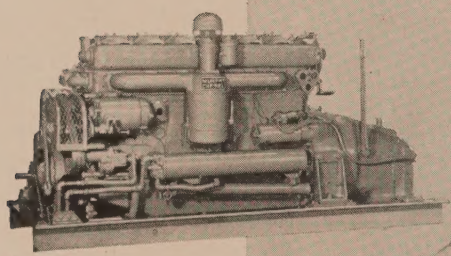

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# Japan Wants Halibut

● Demand that Japan's Bering Sea trawlers be permitted to possess and market halibut taken by such trawling east of 175° West Longitude was being made by the trawl operators of the Japanese government as the Tokyo meeting of the International North Pacific Fisheries Commission entered its initial phases.

This proposal was creating some internal tensions between the industry and the government, for the Fishery Agency was giving evidence of maintaining its position that such action would require amendment of the North Pacific Treaty; and that Japan can do no more at present than to present scientific evidence supporting its contention that halibut east of 175° West Longitude does not qualify for abstention from fishing by the Japanese.

In insisting the Japanese Section of the INPFC move to permit their trawlers to retain halibut, the industry suggested that the United States and Canada be asked to agree to permit the retention of halibut to the extent of 6,000,000 lbs. per year, where it is taken incidentally to trawling conducted for bottomfish generally.

● Japan's fishing industry also finds fault with the Fishery Agency's continuing position that in 1962 trawls and longlines cannot be operated by its vessels in waters south of the Alaska Peninsula.

This would restrict fishing to gillnets, and to mid-water trawls, which proved highly successful against herring in these waters in 1961.

This point was not expected to be argued in the international conference; but it was a matter of domestic controversy between industry and government.

● That Japan intends to ask revision of the North Pacific Treaty is no longer in doubt; but *when* this may be expected, and the character and extent of the proposals are points upon which there is no consensus.

Some say the proposal will be launched in Seattle in 1962, while others believe it will be held back until the 1963 meeting in Canada, when the treaty will have completed its specific term.

This much is sure: the proposals will be painstakingly considered, and well supported. Reopening the treaty at all might have some dangers from the Japanese point of view, as this could invite proposals inimical to Japan's interest.

● Scientific sessions preliminary to the plenary meetings of the Tokyo conference opened quietly enough, although the Americans had some difficulty in concealing politely their dissatisfaction with the lack of adequate data as to the catch of the Japanese high seas salmon mothership fleets, and the composition of that catch in size and age of fish.

Preliminary data indicated a Japanese catch of only a little over 11 million while other sources of information indicated a catch exceeding 16 million.

Scope and character of the research efforts mounted by all three countries in 1961, as reported in the last days of October showed definite growth over former seasons. This was evident in spite of the fact that in some of the more advanced studies 1961 saw only the beginnings.

Researches reported served to confirm, rather than to challenge, the conclusions of former years, pushing the detected dominance of Bristol Bay-origin Reds a little further west. Meanwhile the Japanese reported confirming a new easterly distribution of Asian Chums as far as 153° West, tagged fish from this area having returned to Asian waters.

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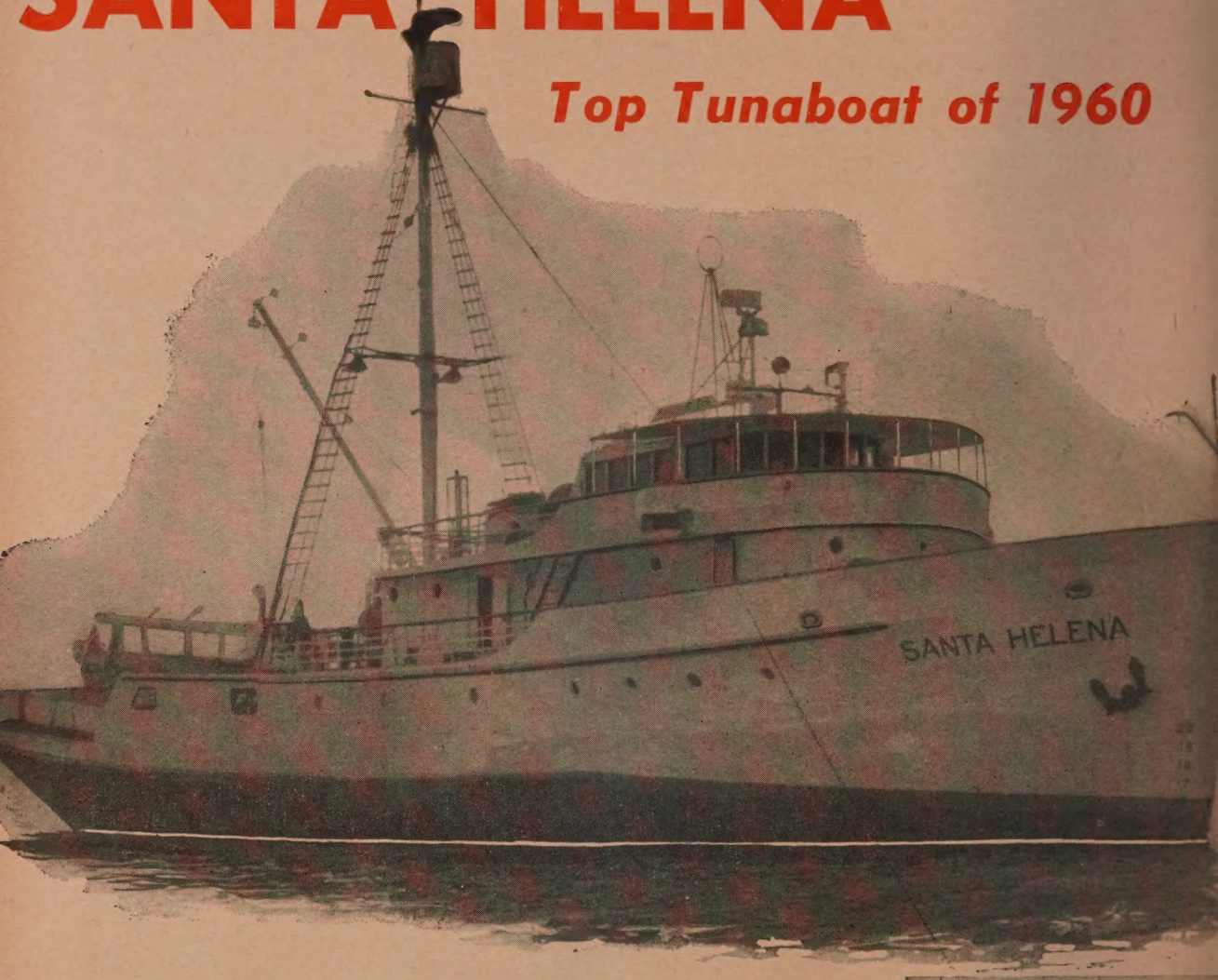


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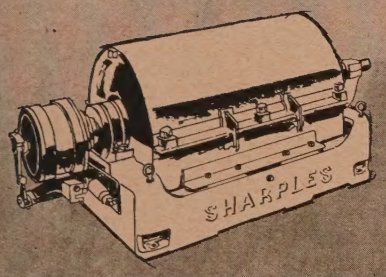


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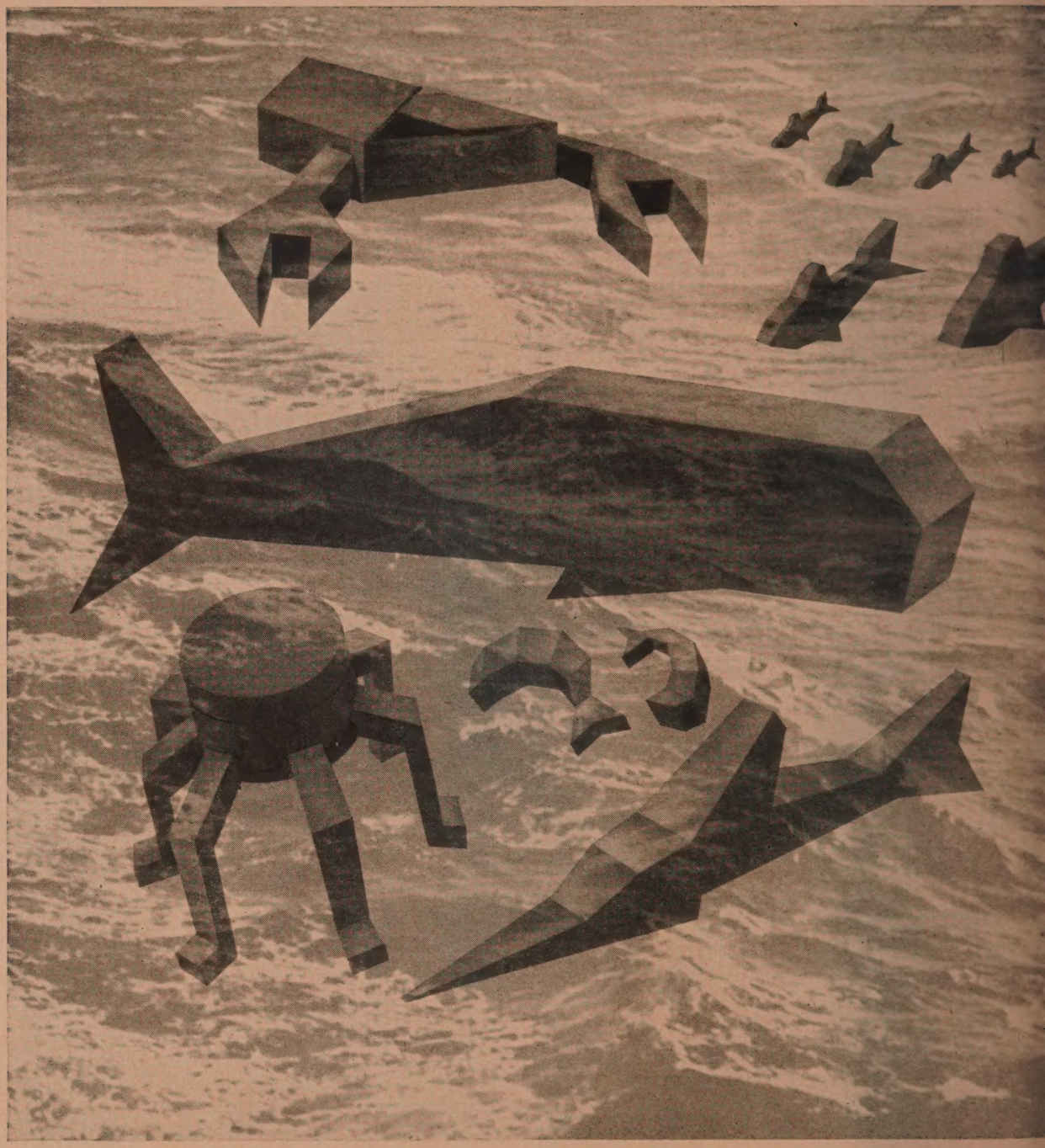

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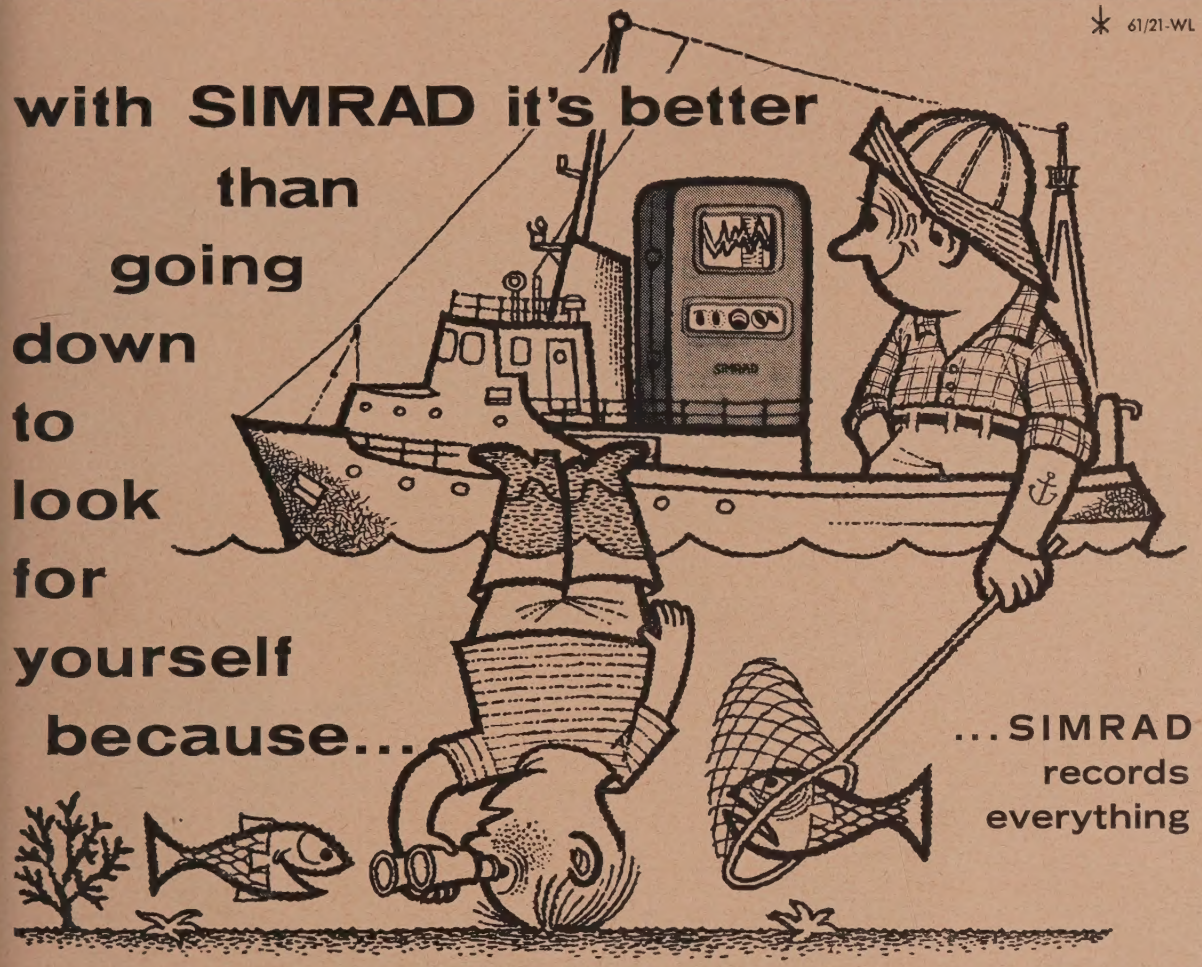


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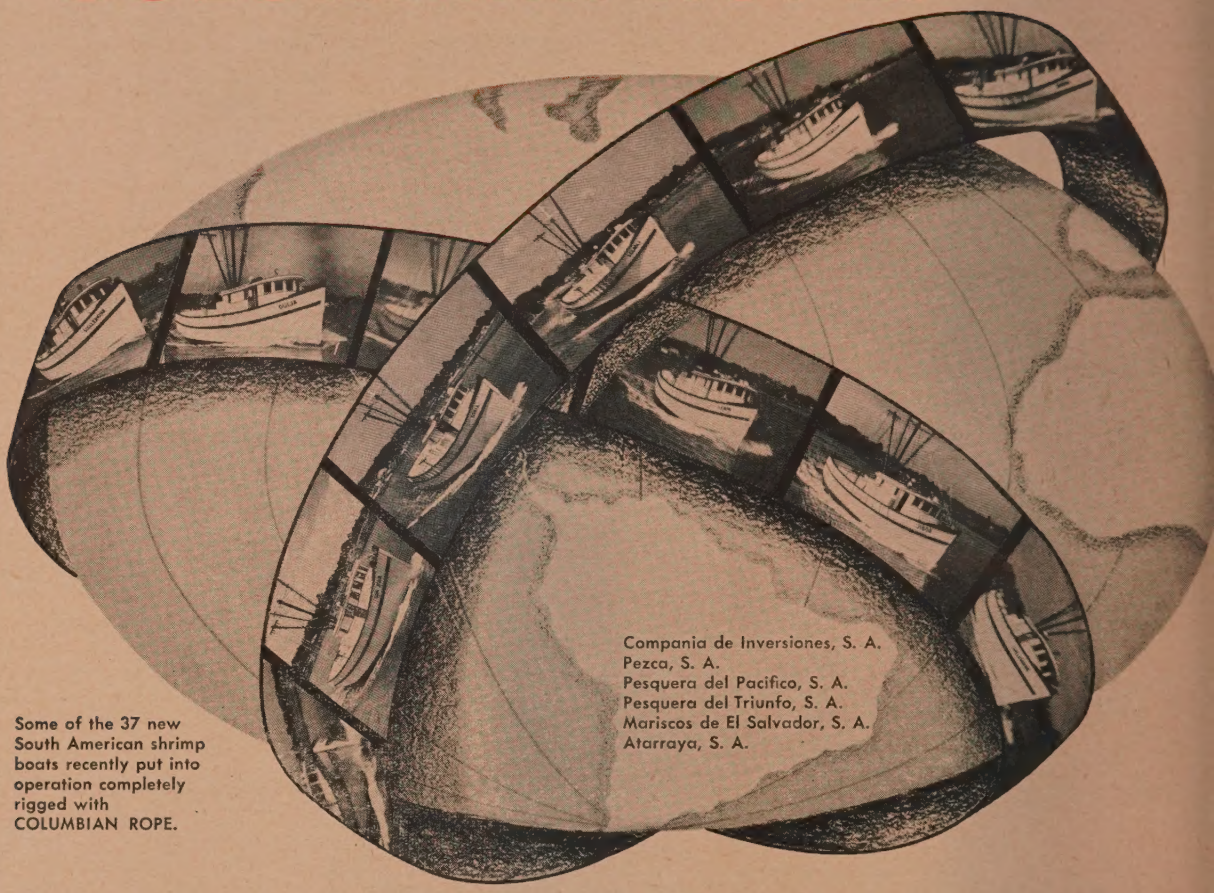

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## 1961 Hawaiian Tuna Run Peaks Early

● One of the best June Skipjack tuna seasons in history was experienced in the Hawaiian Islands in 1961, but the brave beginning faltered and the tonnage landed slipped off badly during July and August, the months in which production usually peaks. The explanation of this disappointing development probably lies in the fact that oceanographic changes of surface temperature and salinity which usually appeared to be associated with the decline in oceanic Skipjack abundance, occurred about two months early in 1961. By the end of September, the "season" Skipjack which are those of large size running up to 30 lbs. or more, had virtually disappeared from the catch and the deliveries of the local tuna fleet were confined in large degree to the smaller Skipjack characteristic of the Hawaiian resident population.

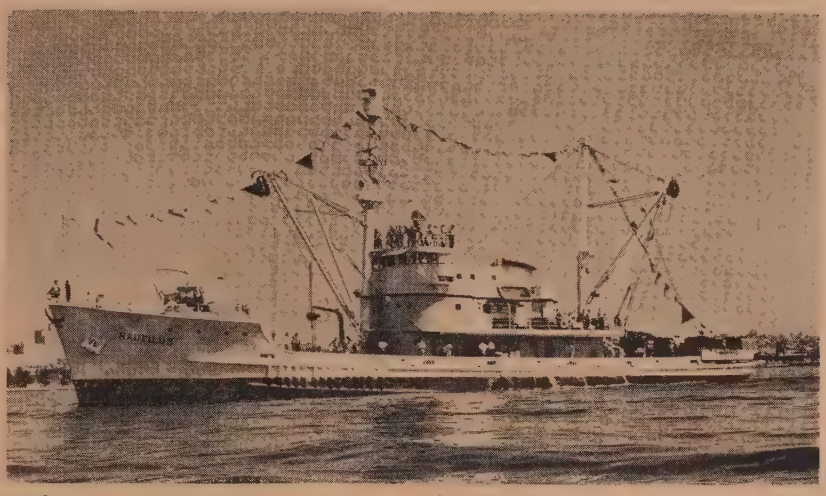
The plant of the Hawaiian Tuna Packers Limited, a division of Bumble Bee Seafoods, Inc., is now equipped with a modern, condensed fish solubles division of its reduction plant. These solubles are sold locally to feed mixers; and the company's production of tuna meal finds a ready local market in the Hawaiian Islands.

At the time the plant was visited by *PACIFIC FISHERMAN* just at the end of September, the Japanese refrigerated transport *Santo Maru* was in port from the New Hebrides with a load of about 600 tons of long-lined Albacore and Yellowfin.

● The Albacore were of the large size, running from a few as small as 30 lbs. to an average of about 60 lbs. The Yellowfin were fine size for canning, generally being about 80 to 100 lbs. weight. The Albacore were delivered round, and the Yellowfin gilled and gutted.

The Albacore was notably white in color, very uniform, but excellent in character.

The *Santo Maru* operates on a regular transporting schedule from the plant in the New Hebrides in which the Washington Fish and Oyster Company is associated with Japanese and Australian interests. Eight Japanese longliners operate to serve the plant and the transporter variously delivers the product to the Hawaiian tuna packers and the Washington Packing Company tuna cannery in San Francisco.



**With Pennants flying** and a crowd of notables aboard, the world's biggest tuna seiner **Nautilus** sails out of San Diego Bay on a trial cruise.

## Tuna Fleet Greets World's Biggest Seiner

As the *Nautilus,* 189 ft. long, sailed back into San Diego Bay carrying a cargo of high-level guests home from a gala trial cruise, somebody said, "We are seeing history made here today".

The statement was corny, but true. The *Nautilus,* first tunaboat in the 800-ton range, is not only the biggest seiner afloat, but she will undoubtedly be the pioneer in an entirely different kind of fishing for tuna. She will be able to cruise to any fishing grounds in the world; on the other hand, she may have to cruise farther than any other tunaboat to find fish to fill her holds. With her two power-blocks, two skiffs, 12 fish holds both fore and aft, she will undoubtedly develop some entirely new method for making and handling her catches.

The *Nautilus's* completion and first fishing trip were the most spectacular news events of the month in the tuna industry. The details of the vessel will be given fully to the readers of *Pacific Fisherman* in an early issue. The big new vessel is owned by Eddie and Joe Madruga, Frank Gonsalves and their associates. The conversion to tuna seiner from Navy mine layer was done by Campbell Machine Inc. of San Diego.

### Fishing Picks Up

In the doldrums for several weeks of early Fall, tuna fishing picked up substantially in mid-October. According to the Inter-American Tropical Tuna Commission, as this is written some 20 or 25 vessels are on their way home with loads, mostly of Yellowfin, from off Central America. Among the returning boats is the *Royal Pacific,* Lou Brito's new seiner, first tuna seiner built from the keel up *as* a tuna seiner. Although nothing definite is known at this moment about the *Royal Pacific's* cargo, educated guessers say it should be somewhere in the vicinity of 425 tons. From what is known, the fish heading home to the cannery docks at the moment will total about 7000 tons. Fares seem to be mostly Yellowfin. The first vessel to return, the *Seafarer,* delivered a majority of Yellowfin.

On the matter of controlling the Yellowfin catch, which the Tuna Commission says is passing the maximum sustainable catch point, no new developments have taken place since the Commission in Long Beach in August decided to recommend a quota of 83,000 tons of Yellowfin for the year 1962.

Legislation was being prepared for introduction in Congress early in 1962 to empower the U.S. Government to impose the recommended 83,000-ton quota. Since this bill, when introduced, will have to go through committee, then to the floors of both houses and finally to the President for signature, it is likely that no action will be taken before early summer at the earliest.

Meanwhile, the catch of Yellowfin per unit of fishing effort showed a decline. Fishing effort at present, according to the Commission, with the big new seiners in service, is approaching double the effort before the conversion rush, and the Yellowfin catch is shown by the Bureau of Commercial Fisheries to be only about 9% greater in 1961 than in 1958 for the period from Jan. 1 to mid-October.

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# P. F. REPORTS

# North Pacific Fisheries Tensions Taken Seriously

• High level North American concern o a degree not previously manifested vith the current fishery problems of he North Pacific was accepted as evi- lence by Japanese in October.

Incisive minds saw this in the fact hat Prime Minister John Diefenbaker f Canada and United States Secretary f the Interior Stuart Udall both were cheduled to be in Tokyo during at east part of the 1961 International North Pacific Fisheries Commission.

These minds, who saw this and did ot hesitate to comment upon it, were vithin industry. Those within govern- nent were not so outspoken.

While it was not anticipated that ither Prime Minister Diefenbaker or Secretary of the Interior Udall would articipate substantially in the Con- ference, the fact that they would be resent during at least a portion of he meeting, and obviously would be vailable for conference, and for de- isions, was accepted by the Japanese s particularly significant.

• The Japanese recognize that it is ossible that American developments within the past year may have made t more probable that the policies of he United States might find a move- nent to bring Russia within the mem- ership of a North Pacific conven- ion, probably not the existing one, nore acceptable than in the past.

Government spokesmen do not say this openly. Industry leaders acknowledge it, but are careful to withhold comment. Journalists do not hesitate to indicate that Japan would find such a 4-way membership something with which it would be hard to live.

• Within the Japanese industry, and again within the Japanese fisheries journals, there is no concealment that Japan expects upon the termination of the stipulated 10 year's life of the present treaty to initiate a movement for its revision or amendment.

It is more or less evident that perhaps the one negative factor operating against this view is the possibility that action by Japan in seeking revision would open the treaty to amendment which might bring the Soviet Union within its membership.

It appears doubtful if there is one thoughtful Japanese who desires this.

• Comprehensive press reports of the Senate Fisheries Hearings held in Seattle in mid-October were published in the Tokyo press. There can be no question but that the reports of statements by Senator Warren Magnuson; Representative Thomas M. Pelly; Herald O'Neill, Executive Secretary of the Association of Pacific Fisheries; George Johansen, Secretary-Treasurer of the Alaska Fishermen's Union; and Harold E. Lokken, Manager of the Fishing Vessel Owners Association, were taken very seriously.

In particular, the discussion of possible reintroduction of the Pelly bill could not fail but create an atmosphere of apprehension. There is no action which could conceivably be taken by the United States which has more powerful leverage on Japanese fisheries opinion than the Pelly bill, which would restrict the importation into the United States of salmon taken under conditions of time and place and with equipment deemed by American scientific opinion as inimical to conservation and the maintenance of a sustained yield.

• The Japanese fishing industry, and apparently the Japanese Fishery Agency also, finds special interest and significance this year in the increased artificial propogation enterprises being launched at present in Hokkaido, the only Japanese island with significant salmon runs. There is some reason to anticipate that the increased activity in Japanese salmon cultural operations, which are confined almost wholly to canned salmon, may be advanced during the North Pacific Fisheries Conference as a Japanese contribution to the maintenance of the fishery resource giving the Japanese nation a position of right in the North Pacific salmon fisheries research in spite of the limited coastline from which it can contribute to the maintenance of the resource.

# Japan Salmon Marketing Factors Show Uneasiness

• Japanese businessmen responsible for marketing their country's exceptionally large pack of red salmon produced in 1961 feel an uneasiness which they take no pains to conceal.

One man representing one of the largest holdings of new pack Japanese canned salmon responded to the query of *Pacific Fisherman* in these words: "Yes, we got an excellent pack; but there is as yet no assurance that it will prove a profitable one."

Questioned, he mentioned as factors contributing to this uneasiness:

1. The substantial production of red salmon on Bristol Bay and in northern British Columbia, in addition to Japan's record-breaking pack;
2. Canada's vigorous selling program in the United Kingdom;
3. A carry-over of red salmon in Japan from 1960;
4. Generally adequate pink salmon packs in all quantities.

In this last point the speaker did not seem to be aware of, or perhaps chose to ignore, the extreme failure of the pink salmon production in southern British Columbia and Puget Sound.

• Other sources questioned added to the factors mentioned above. Great Britain's apparent willingness to count, perhaps somewhat hopefully, on the Fraser River's scheduled 1962 Adams River run.

In this connection it perhaps should be mentioned that there were also some who counted on the Quesnel run to the Fraser in 1961, unfortunately.

It is true that the prospects for the 1962 Adams River run to the Fraser are favorable, but it is considered improbable that it will reach the volume of the run of 1958.

# "We tripled our take with Nylon tuna nets"

**says Lou Brito, owner of the tuna boat "Southern Pacific".** "With poles we used to average about 3 tons of tuna per day—now with nylon purse nets we regularly get 9 tons per day. In fact, the extra catch paid for the nets in one year—and we've been getting extra profits ever since!" ■ "And this Du Pont Nylon is tough and long-lasting. The original set of nets I bought 5 years ago is still going strong and needs only minor repairs once in a while. I'd say Du Pont Nylon has saved the Southern California tuna industry." ■ That's from one of the Pacific Coast's most prominent tuna men. To get the same profitable results, rely on your *domestic* netmaker to give you high-quality service and workmanship—and specify nets of Du Pont Nylon. Mr. Brito's nets came from the Nuttal-Styris Co. of San Diego.

DU PONT

Better Things for Better Living ...through Chemistry

**A breeding station** for Tilapia bait is being developed by Hawaii on its Sand Island. W. Kanakanui and H. D. Hart are standing next to one of the hatchery tanks in the photo above.

# HAWAII Sets Mono-Filament Web Seeking New Tuna Technique

● "Hawaii's future in tuna fishing depends on improved techniques," says William Kanakanui, manager of the Honolulu Tuna Vessel Owners Association. He should know, for he has lived his full life in intimate contact with the fleet and its problems.

"The development must be on the basis of the *present* fleet, and proved there, before there will be the stimulus for further building. Our high seas tuna fleet is not now well manned, nor profitable due to the peculiar problems related to our fisheries. We have given serious thought to arranging a comprehensive test for purse seining in our waters, but it does not appear that this form of fishing would be practicable under conditions as they are found in and near Hawaii, where our schools of tuna appear to be on a migration path, feeding as they go, on the scant quantities of bait fish available in our region.

"Our search for new techniques, then, is being pursued along two lines. One, testing the possibilities of high seas gillnetting with mono-filament nylon nets; and two, the actual full-scale propagation and rearing of bait fish, notably Tilapia, for sale to the tuna fleet."

The tuna fleet of the Hawaiian Islands and the industries interested with it in the resource have recently formed the Ako Fisheries Council, composed of the tuna fishing groups in Oahu, Maui and the Island of Hawaii. Through this state-wide association of Associations, the tuna industry expects to be able to make its voice and opinions heard more plainly in the State Legislature and the National Congress.

## How Hawaii Will Raise Bait

● Hawaii, as a state, will be in the bait business before the end of 1962 with a 44-tank station on Sand Island, immediately adjacent to the new channel being dredged as an exit from the Honolulu Harbor. This actual commercial-scale project results from an appropriation of $130,000 made by the state. While delays have been encountered, it is confidently anticipated that the project will be in operation before the end of the year and that fish of satisfactory sizes for bait will be available for sale before the next main Skipjack season.

**William Kanakanui,** manager of the Hawaiian Tuna Vessels Association.

The station will consist of a series of shallow concrete tanks where the Tilapia can be bred, and then sorted to prevent cannibalism.

Tuna fishing boats will be able to lie at the dock about 50 yards from the outlet from the series of ponds, and to receive the bait fish by flume.

The quantity of bait which will be available next season is not yet subject to estimate, as the winter months of December, January and February are the low portion of the Tilapia

**Herbert D. Hart,** manager of the Hawaiian Tuna Packers.

breeding cycle.

It is anticipated only that the artificially produced bait will be supplemental to natural supplies, at least in the immediate future. The property on which the bait station is established is sufficient to provide a very large expansion of this facility if it proves practical and economically advantageous to the fleet.

● While the bait production enterprise is altogether a venture of the State of Hawaii, it represents an interesting example of industry and governmental cooperation in the search for a solution of a problem which has perplexed and handicapped the Hawaiian tuna business from its beginning—the persistent shortage of fish suitable for live bait purposes in the vicinity of the Hawaiian Islands.

First efforts to develop the culture of Tilapia as a bait fish were undertaken by the Hawaiian Tuna Packers, Ltd., a number of years ago when Mr. Herbert D. Hart, vice president and general manager of the Hawaiian Tuna Packers Division of Bumble Bee Seafoods, Inc., experimented with the possibilities of growing these fish in drainage canals on some of the Hawaiian sugar plantations.

Later, the United States Fish and Wildlife Service conducted a series of experiments in the artificial culture of this bait fish, using a temporary station in Honolulu Harbor, and also developing a station on one of the other islands.

Thus the State of Hawaii's ventur in bait production and sale to its fish ermen had its origin in the interes of industry providing for the fleet followed by scientific studies on th part of national government whic devised and proved the technique o a pilot plant basis and the final appli cation of these practices and prin ciples by the state, in its venture an investment on behalf of its fishin fleet.

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*PACIFIC FISHERMAN's Editor De Witt Gilbert is currently on editorial assignment in the Orient. His Ha waiian report will be continued in ou next issue with a discussion of th work being done on the monofilamen gillnet.*

# North Pacific Will Be Full of Monofilament Next Year

● A lot has been said of monofilament nylon netting in the notes, and a lot will continue to be said about them in *Pacific Fisherman* in the future. Wherever you talk fishing in Japan the subject of monofilament netting comes up. This much is sure:

The 5,000 shackles of monofilament nylon fished by the Japanese high seas fleet in the North Pacific this year will be only a fraction of that which will work for salmon in these waters next season.

● There is no denying the fact that the Canadian decision to forbid the use of monofilament netting for salmon in 1962 was a sharp blow to the hope of the Japanese net manufacturers. They were already well loaded with orders and expected a great many more. However, Canada's decision serves to release fiber and machines which had been committed for the purpose of filling further orders from the Japanese high seas fleet.

In addition to the salmon gillnets of monofilament being turned out in Japan, there are substantial quantities of this net going into fisheries in many parts of the world. These include fresh water lakes as well as the ocean fisheries of the Asian, African and European coasts.

The price of this netting is expected to be high as now monofilament is being made in the desired oval sections only by the Toyo Rayon Company, which has a patent for the manufacture of this shape of filament. The price is expected to be high.

It had been said previously, but can well be repeated here again, that the oval shape of the filament serves two purposes. First, the shape appears to break up the reflection of light through the filament from the inside surface. In the case of a cylindrical section of the monofilament this reflected light appears to focus and to render the filament more visible in water when it is round than when the oval shape is used. The second advantage in the oval filament is said to be in the increased stability of the knot.

One of the great drawbacks of mon ofilament is its excessive bulk and th limit which it puts on the amount o net which a vessel can carry. Whil figures as to bulk are difficult to ob tain, the opinion of qualified person indicates that a monofilament net oc cupies twice the space of a net o equal size made of multifilament nylo in the same strength.

It is anticipated by some Japanes netting experts that there will be trend in 1962 to use monofilamen panels between sections of multifila ment net of conventional type. Th reason for this is that the net mad up of such panels seems to catch a many fish as the all monafilamen net. The reason for this is not ap parent but it serves to reduce the bul of the net carried by making the gil net consist only partly of the bulk monofilament sections.

This phenomenon is said to hav been observed in the experience o Japanese gillnetters in the mouth o the Fraser River during the 196 season, when they used panels of mon ofilament in their nets with startlin results. Virtually the entire catch wa made in these panels while the mult filament panels went empty, and po sibly even came to lead the fish t the monofilament sections.

## Bering Sea Shrimp Canning Encourages Taiyo

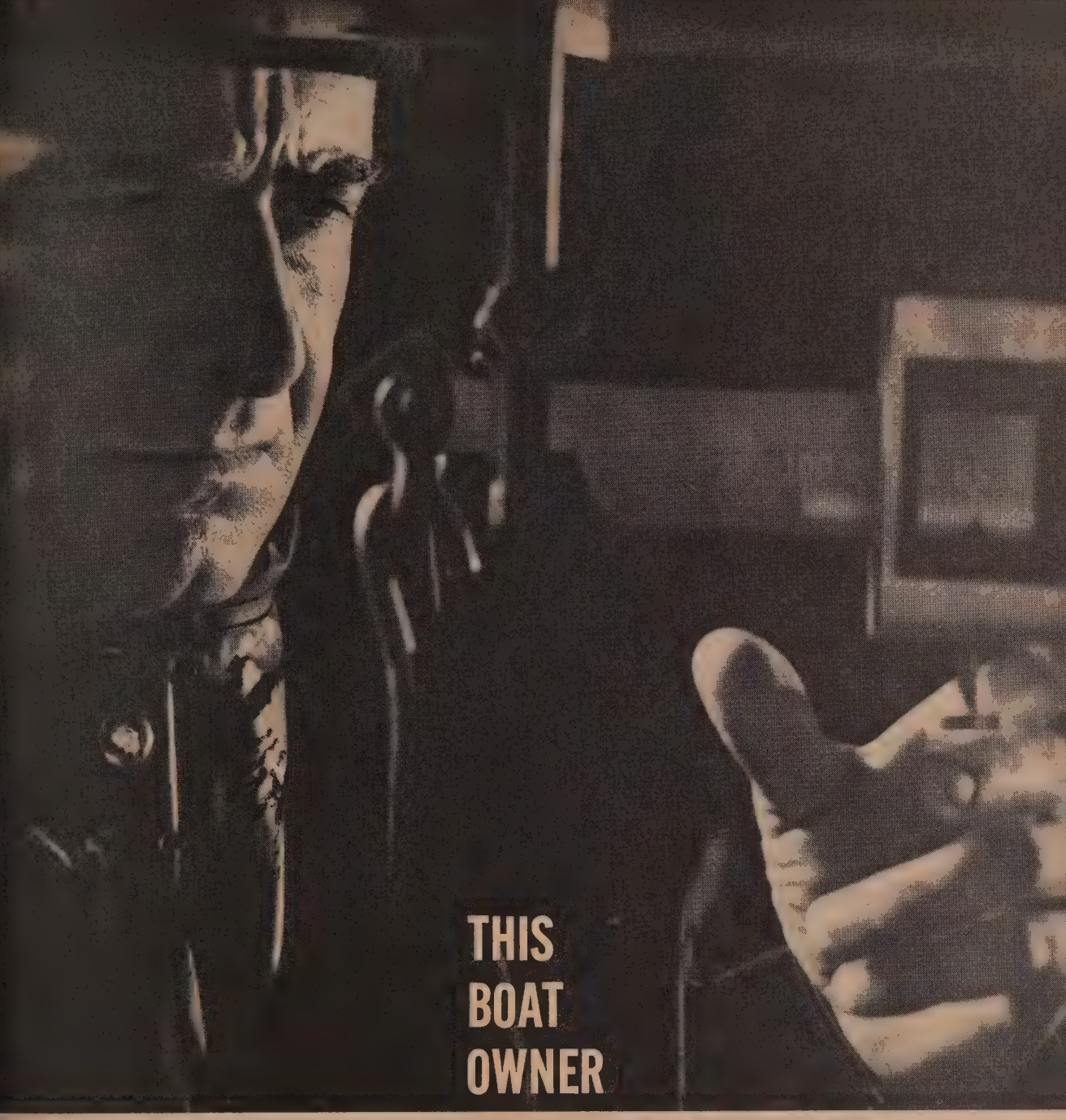
Results of the first season's shrimp canning operations by a Japanese factory ship were quite encouraging to Taiyo Gyogyo K.K., operator of the only factory ship participating in this operation in 1961. The pioneer venture produced approximately 75,000 cases out of a target of 80,000.

The shrimp were found in expected abundance and proved entirely suitable for the product.

The minor shortage below the target resulted from difficulty at the first of the season with the Peelers machines with which the vessel was installed. There was some difficulty in adjustment of the machines, which took a little time to correct, and by the date when the adjustment had been made so that a satisfactory re covery was obtained it was impossible completely to fill the target.

However, the venture is expected to pay out financially, and Taiy spokesmen indicate this is as good as should be expected from a pioneer

Samples of the product are being shown to foreign buyers in Tokyo but at the time of writing a price has not yet been reported.

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**One of two sisters,** as alike as two Sockeyes, **Vagabond Maid** is an exact duplicate of **Gypsy Maid.** Here she is, fully found for fishing, with her aluminum seine skiff ready for the set.

# The Hansen Brothers—

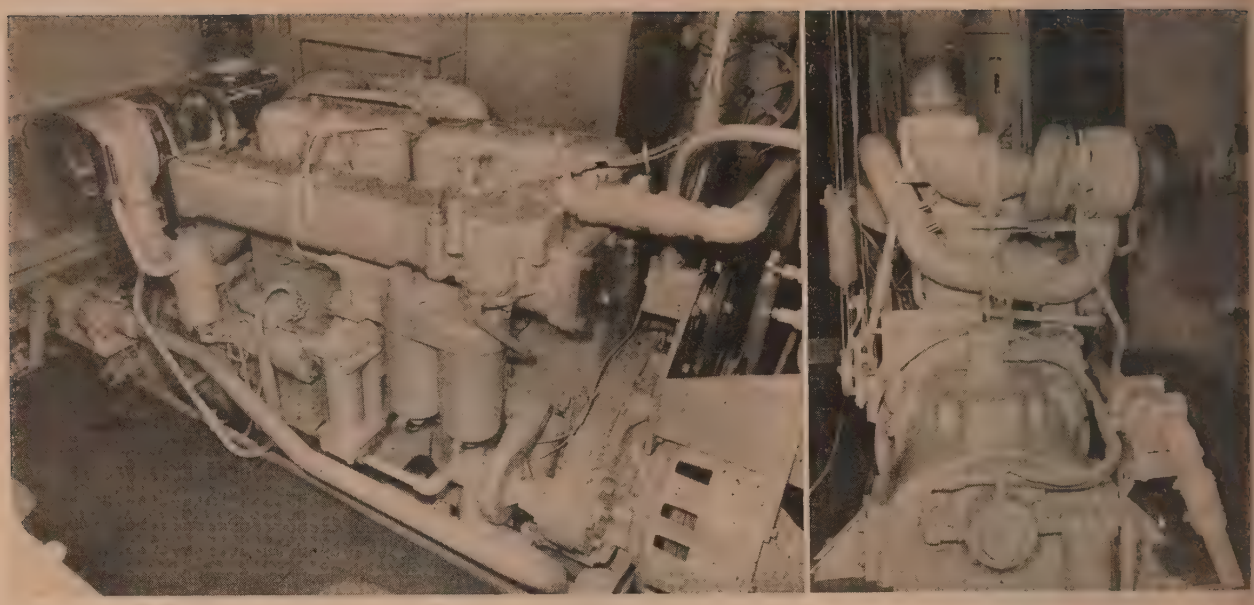
## They Build 'Em and Fish 'Em

• The Hansen brothers, Don and Dick, partners in the Harold Hansen Boat Co., Seattle, are fishermen turned boat-builders; and quick to turn back again to fishing when the forecast sounds good on Puget Sound or in Southeast Alaska.

When they feel like fishing they use boats of their own building; for they know them to be sound, and as builders they believe it is good business to know just exactly how their product produces. There's no better way to determine what a fisherman wants in a boat than to fish it yourself; and with today's constant developments in design and construction refinements, equipment, rigging and gear, it's to a builder's advantage to keep his hand in. And here you have *two* builders.

That calls for two boats—and they had 'em, *Gypsy Maid* and *Vagabond Maid,* finished this spring in the Harold Hansen yard, just in time for Dick Hansen to take the *Gypsy* and his

**Don and Dick Hansen,** left and right, not only build seiners but fish 'em. **Vagabond Maid** and **Gypsy Maid** came from the family's boat yard, Harold Hansen Boat Co., Seattle, this spring and were fished for salmon on Puget Sound during the 1961 season. Don commanded the **Vagabond** and Dick the **Gypsy.**



**Compact convenience** of the 230-hp. Allis-Chalmers diesels powering the **Vagabond Maid** and **Gypsy Maid** is evident in these engineroom photos. A glimpse of the Lister auxiliary diesel is seen in the upper right corner of the left photo.

brother Don the *Vagabond* fishing for Nakat Packing Corporation's Anacortes cannery.

Other Hansen-built boats, the *Mystery Maid,* was completed this spring and also fished for Nakat, both in Southeast Alaska and on Puget Sound.

● These naturally are Alaska "limit" boats, 58′ overall, with 18′ beam. They are powered with Allis-Chalmers marine diesels, Model AC-21000, turbocharged to a rating of 230 continuous horsepower at 1,800 rpm. They drive through Capitol reverse and reduction gear, 4.5:1; and have Twin-Disc front-end power take-offs. Propellers are Olympics, 3-blade, 54″ diameter and 42″ pitch. Engine controls by Mathers handle throttle and clutch.

Auxiliary engine is an 8-hp. Lister diesel, Model LD-1, which drives a 32-volt generator and battery-charger, and powers a 1.5″ fire and bilge pump. An Onan unit provides electric lighting.

Instrumentation on these modern *Maids* includes:

Radio telephone, a Northwest Model NW-3, with 11 channels, 260-watt input, with microphone station on the flying bridge and a remote speaker in the galley. This was supplied by Northwest Instrument Co., Seattle, as were the 6″ Atlas compass in the pilot house and the 5″ Ritchie "Pilot" compass on the flying bridge.

There are two sounders, a Ross "Fisherman" Model 600 indicator on the bridge and a recorder, Model 11 of the same make, in the pilot house.

● Deck gear includes a Kohlstrand purse seine winch, driven off the main engine; and a Kohlstrand hydraulic anchor winch.

A Puretic power block from Marine Construction & Design Co., also hydraulically driven, hauls the seine of each of the *Maids.*

The handsome galley, equipped with an Olympic range from Washington Stove Works, is finished in St. Regis Panelyte, as is the skipper's cabin and other interiors. There are two berths in the skipper's cabin; two bunks in the starboard side of the house, forward; and six in the fo'csle.

General Fire Extinguishing Corporation portables protect the engineroom, and are available also in the pilot house and companionway.

● The *Maids* are equipped with aluminum seine skiffs, designed by Don Hansen and built by Matsumoto Shipyards, Ltd., at Dollarton, B. C. These skiffs are 18.5′ long by 9.5′ beam and are powered with 100-hp. Western Ford packaged power units supplied by the Pacific Marine Supply Co., Ballard Division. Skiff propellers are stainless steel Coolidges.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# TUNA SEINES: HOW DEEP?

**by Frank J. Hester**

● How deep does your tuna seine go?

This question has been partly answered by scientists at the U. S. Bureau of Commercial Fisheries Biological Laboratory, San Diego, as part of the Bureau's program to help the American tuna fishermen increase their catching efficiency. Knowledge of the depth reached by present tuna seines may suggest to the fishermen improvements in design and operation that will minimize the tuna's chances of escaping under the leadline.

The operation of a seine in deep water leaves an avenue of escape for the fish—down. It has been suggested that the depth and nature of the thermocline, the zone of transition from the warmer surface water to the cooler water of the depths, might determine whether or not a set is successful. In other words, the fish would not enter the cold water and would be trapped if the net goes deep enough to reach into or below the thermocline.

In order to find out exactly how deep a tuna seine goes and to test the hypothesis about tuna response to the thermocline, instruments were developed by the writer that can be attached to the net and which will record changes in depth with the passage of time.

These instruments are less than 12" long and cost in the neighborhood of $120, permitting several to be used on the net simultaneously. They are attached to the leadline and ride it overboard as the net is set. The device starts recording upon entering the water. During a recent trip on the tuna seiner *West Point*, 19 days of which were chartered by the Bureau (PACIFIC FISHERMAN, Oct. 1961), several of these devices were attached at various places along the leadline. This particular net measured 435 fathoms in length by 43 fathoms in depth.

Typical results are shown in the three panels of Figure 1. The depth in feet reached by the instruments is indicated down the left-hand scale. The time taken for the instrument to reach the corresponding depth is given in minutes along the bottom scale. Time starts as the instrument enters the water.

In Panel A, the instrument was located near half-net. Two traces are shown. They represent two different sets made under quite different circumstances and show the variation in depth caused by wind and current acting on the boat and net. The broken line indicates the depth reached by the leadline on a day when the wind and current were tending to drive the boat and net apart. The net reached a depth of 160′ (26½ fathoms). The solid line is from a set made two days later when *West Point* drifted into the net allowing the leadline to sink some 50′ deeper to a depth of 210′ (35 fathoms).

In Panel B, the instrument was attached between the second and third rings from the bunt end. The hump in the trace at 4 minutes occurred when the skiff came alongside and applied power as the end of the net was being passed over from the skiff to *West Point*.

In Panel C, the instrument was fastened to the leadline 5 rings from the hauling end. The gradual sinking as the net is pursed is shown.

The relatively long sinking time of the net is of particular interest, emphasizing the necessity of a good "lead" when the fish are moving. For example, assume that a school of fish is moving at 3 knots, or about 100 yards per minute. Assume also that a bathythermograph trace has been taken showing the thermocline to be well developed at 125′.

From this information, it is possible to calculate the amount of "lead" necessary to allow the leadline to reach the thermocline before the fish reach the net. On an average it takes 1½ minutes to set half the net. From Figure 1-A, one finds that the leadline at the center part of the net takes about 4½ minutes to reach a depth of 125′. The sum of these two times gives a required lead of 6 minutes, during which the fish will travel over a quarter of a mile. This simple cal-

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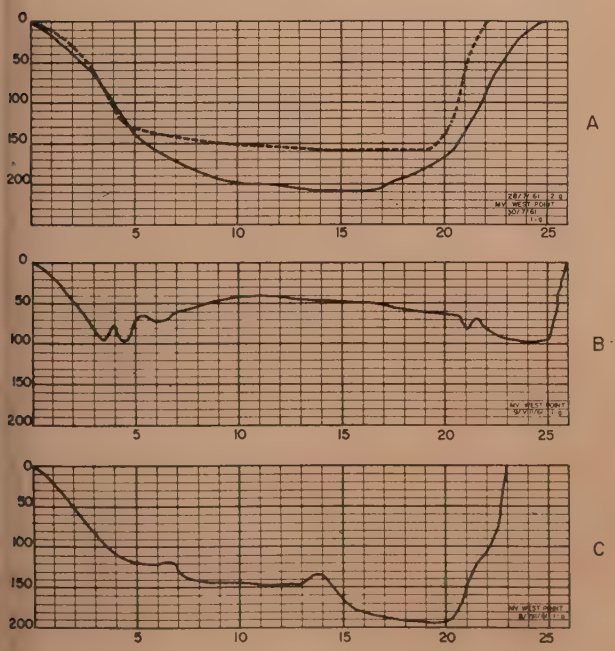
**Mr. Hester** is from the US Bureau of Commercial Fisheries, Biological Laboratory, San Diego.



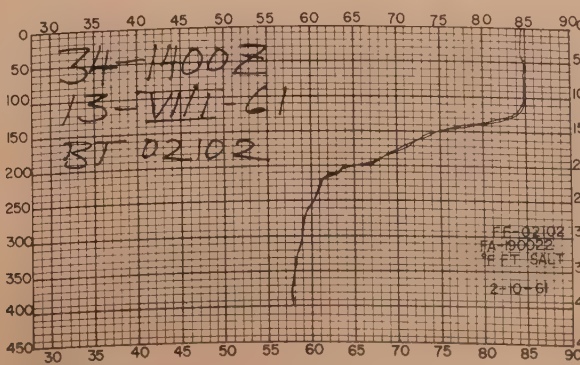




**Fig. 1:** Changes in the leadline depth with time. Numbers down the lefthand side give depth in feet. Numbers across give time in minutes after the leadline enters the water. A—measurements made at half-net on two different days (see text). B—measurement made two rings in from bunt end. C—measurement made five rings from hauling end—.

**Fig. 2:** Facsimile of a bathythermograph slide taken on August 13, 1961, aboard **West Point.** Numbers down give depth of feet. Numbers across give sea-water temperature in degrees Fahrenheit.

culation does not take into account the distance through the water that the fish can see the net. In clear water, the lead would probably have to be increased.

Decreasing the sinking time of the net is desirable. The most obvious method is to add more weight to the leadline. If a substantial increase in weight is not possible, it may be that the size of the chain used on the bunt end can be decreased and larger chains used from half-net on. This would allow the portion of the net entering the water last to sink faster. On *West Point*, it was found that towing with the skiff while the net was being laid out caused the bunt end to sink more slowly. A similar effect may result if the tension on the purse line is not kept to a minimum during the set.

A reduction in the drag of the webbing will allow the net to sink faster. This can be accomplished by using the largest mesh size and the smallest diameter seine twine possible on each part of the net. The new knotless webbing may also prove effective in reducing drag. The Bureau plans further investigation along these lines.

On twelve separate occasions during the trip on *West Point*, fish were observed to go under the net. Ten of these escapes took place before the net had time to reach the thermocline. Only twice was it likely that the fish actually entered layers of water considerably colder than at the surface.

Figure 2 is a facsimile of a bathythermograph slide taken aboard *West Point* on August 13. The bathythermograph is an instrument that records water temperature and depth on a smoked glass slide as it is lowered on a wire. The trace in Figure 2 starts at a surface temperature of 84.6° F. and ends at 400′ at a temperature of 57.8° F. The thermocline is rather sharp with a temperature change of 20° F. between 100 and 200′.

On this day, *West Point* made one set on a breezing school of Skipjack and tuna which could be seen in the center of the net for 14 minutes after the skiff was let go. The schools then went down and reappeared outside the far side of the net. Evidently the fish had gone under the deepest part of the net, which, according to Figure 1-A, should have been at a minimum depth of 150′ well within the thermocline.

The preceding shows that tuna will, at least under certain circumstances, enter the thermocline. The Tuna Behavior Program of the Bureau's San Diego Laboratory hopes to be able to explain in the near future what these circumstances are. At the same time, it is possible that the use of the bathythermograph and other instruments aboard seiners might produce an increase in the percentage of successful nets.

# B.C. Salmon Season Left Trail of Disappointment

● Probably the nicest thing you could say about British Columbia's 1961 salmon season was that everyone made the best of a not particularly favorable situation.

Fishermen gave their maximum effort by operating through the entire allowable period, although they were severely restricted from time to time when the escapement appeared to be jeopardized.

Canners operated their full complement of plants and managed to keep most of them reasonably busy.

The staff of the International Pacific Fisheries Commission maintained its reputation for accuracy in forecasting the size of the run, although in a few instances, due to unaccountable conditions, they missed their prediction by a slight margin.

The Fisheries Department, in company with the Commission, shared the unenviable predicament of having to impose the stiffest restrictions on fishing within their memory. But these two agencies also had the satisfaction of knowing that, due to those restrictions, satisfactory provision was made for maintaining or increasing the stocks in subsequent cycle years.

● The sharpest disappointment was the sudden and inexplicable decline in the Sockeye run after a particularly auspicious start. Fisheries biologists are still mystified by the swift transition from abundance to virtually nothing. Such a decline in sea survival within a single season has never happened before, and one man's guess as to the cause is probably as good as another's.

One of the factors that had buoyed the industry's hopes early in the season was the fine return of Early Stuart fish which had led to the forecast that the total season run might approach 6,000,000 fish. Another was the fact that in July the dollar value of landings was the highest on record, largely because of the big catches in northern waters.

● The early Sockeye run on the Skeena was unexpectedly high, totaling nearly 1,700,000 fish, or roughly 65% more than the Skeena Management Committee had estimated. The catch was about 980,000, with escapement about 790,000 fish. The Sockeye catch in Rivers Inlet was more than double the 1957 total, and the Smith Inlet catch was also higher. However, it was soon apparent that the populations would not reach the anticipated proportions. The Pink run tailed off in Johnstone Strait and the Sockeye season on the Fraser was a continuing disappointment.

What caused the season's greatest worry was the unique occurrence on the Horsefly when Sockeye spawning was imperiled by unusually high temperatures. For a few anxious days it seemed as though the spawning population was in danger of extermination, but the melting of snow that fell on Labor Day saved the situation.

Conditions on the Horsefly before then caused a loss of 62%. Examination of the dead fish indicated erosion of the gills and possibly a virus infection due to the warm waters, a condition that caused the spawning salmon to weaken and die before they had deposited their eggs. There had been an escapement to the Horsefly of 303,000 Sockeyes, compared with 226,000 in the brood year, but only 38% spawned.

● The season's pack of Sockeye in B. C. was about 400,000 cases, compared with more than 1,000,000 in 1958 and 227,000 in 1957. Total salmon pack for this season will probably be around 1,390,000 cases when all the figures are tallied. The Pink total will probably wind up with about 660,000 cases. Coho pack was the best in several seasons, totalling more than 218,000 cases early in October.

The Pink run was divided between Canada and the U. S. at 531,000 and 502,000, respectively, according to the Commission's count. There was a better escapement of Pinks in the lower Fraser areas—Seton Creek, Harrison and Vedder—than in the brood year; the Harrison and Vedder accounted for more than the total escapement in 1959. At mid-October, the extent of escapement to the Thompson and the main system of the Fraser had not yet been determined.

● Present indications are for a reasonably good run next year if temperatures on the Gulf of Georgia are satisfactorily cool during the summer months.

# Sonar Spies on Reactions of Tuna To Fishing, Sound and Temperature

● Practical and useful information about how tuna behave when fishermen are fishing for them was brought back recently to the San Diego, Calif., laboratory of the U. S. Bureau of Commercial Fisheries by two Bureau scientists, from a practical-scientific combination cruise aboard the *West Point*, converted seiner out of San Diego.

The scientists, Dr. Richard R. Whitney and Frank J. Hester, working under Laboratory Director Gerald V. Howard, took with them two Simrad sonar units, one aboard the *West Point* and one on a new 15′ research skiff specially built for the laboratory by Mauricio and Sons of San Diego. Ralph Eide, chief engineer of Simonsen Radio, A. S., makers of the Simrad, joined the scientists on the trip. The sonar, especially the smaller unit on the skiff, proved very useful in following movements of fish under water.

One of the riddles the scientists sought to solve was how to avoid scaring away porpoise when the sonar is turned on to try to locate a school of tuna associated with the porps. It had been previously found that certain sound frequencies sent out by the sonar scared away the porpoise and, presumably, the tuna along with them. Dr. Whitney and Mr. Hester worked to discover what ranges of sound frequencies scared the porps, with the view to recommending frequencies that did not have an adverse effect.

According to Dr. Whitney, experience on the cruise seemed to indicate that no particular range of sound is offensive to a porpoise once he gets used to it. Within an hour, it was found, porpoise seemed to lose their fear of any sonar sound, even though they had been startled and driven off by it at first.

Mr. Eide, taking another approach, found that by graduating the power of the Simrad impulses from mild to strong, the sonar could be used without affecting the porpoise. These observations, while not final, seem to show that sonar will be more effective in commercial fishing when the sound range and the power output can be graduated. When the impulses were turned on suddenly the porpoise was found to scare away, the reaction being manifest over a wide range of sound frequencies.

**They Spy on Tuna**—Principals of the **West Point's** sonar study team. From the left: **Ralph Eide,** chief engineer, Simonsen Radio A/S, Oslo, Norway; **Capt. Carl Hanken,** master of the **West Point; Frank J. Hester,** US BCF biologist; **Dr. Richard R. Whitney,** in charge of BCF tuna behavior research at San Diego.

The Bureau scientists used a transducer and signal generator to graduate the impulse frequencies, along with the Simrad.

### How Deep Do Fish Dive?

● The things fish will do to escape a net were also investigated by the scientists.

All fishermen know that Skipjack, like most fishes, prefer to travel in water of a certain temperature range — and sometimes the range seems pretty narrow. But the Bureau scientists discovered, on the *West Point* cruise, that Skipjack will often dive down into considerably colder water than they normally prefer, in order to get away from the fisherman's net.

This information, if properly confirmed by further study, might mean that fishermen could possibly wrap up more fish per set if they used deeper nets, or nets that could go deeper and be closed faster. The work on the cruise seemed to indicate that Skipjack will not hestitate to dive into waters five or six degrees Farenheit colder than surface temperature to get away from a net. It may take quite a difference in temperature, Dr. Whitney remarked, to act as a block to diving Skipjack.

Surface temperatures off Costa Rica and Panama, where the studies were made, often hold steady for 60′ below the surface, Dr. Whitney said, and sometimes for as deep as 100′.

The difference in temperature below the surface are sometimes very gradual, changing only a fraction of a degree in several feet, and sometimes quite sharp, as if a layer of warmer water were laid on top of a layer of colder water. It could be conjectured, Dr. Whitney said, that where temperature changes are gradual, fish may dive deeper than when stopped suddenly by a layer of colder water.

### Hester Invents Instrument

● To make these depth-and-temperature observations, the scientists used a new device built by Mr. Hester, which can be attached to the leadline of the net and which records depth and time on a paper roll. The small sonar-equipped skiff proved very useful, it was said, because with it it was possible to get directly over a school of fish and sight straight down to measure its depth in the water. The skiff sonar—trade-named Basdic—has a depressible transducer head that

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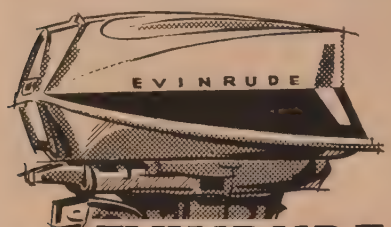


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permits beaming it straight down as well as horizontally.

During the cruise, the scientists had an excellent opportunity to observe sharks during tuna fishing. Although fishing was slow at the time, the sharks were running wild. The *West Point* caught 10 sharks per set, on an average. On one set, 40 tons of Skipjack, netted and ready to brail, were lost when sharks tore the net from outside. Other vessels fishing nearby reported losses of whole catches the same way.

Over the long run, Dr. Whitney suggested, shark damage could probably be controlled by systematic hunting. Sharks, he pointed out, have a long reproduction cycle, and if the shark population could be cut by a year's steady hunting, it would take several years to build up again. This, in fact, happened several years ago when shark was overfished for liver.

The cruise, which left San Diego June 24 and returned August 28, was organized on a different basis from the usual charter trip. It was planned to give the scientists the benefit of observation on a normal, usual fishing trip, plus 20 days for straight scientific work. The *West Point*, under command of Capt. Carl Hanken and with her regular crew aboard as well as the scientists and Mr. Eide, went out on a normal fishing trip and fished normally until her holds were full. Meantime, the scientists had a contracted right to 20 additional days of the vessel's time, which they took whenever conditions were convenient to all concerned and when there was likelihood of benefit from the scientific observations.

**S. O. "Ted" Jules,** sales manager of Viking Equipment Co., Pacific Simrad distributors, who was an interested observer.


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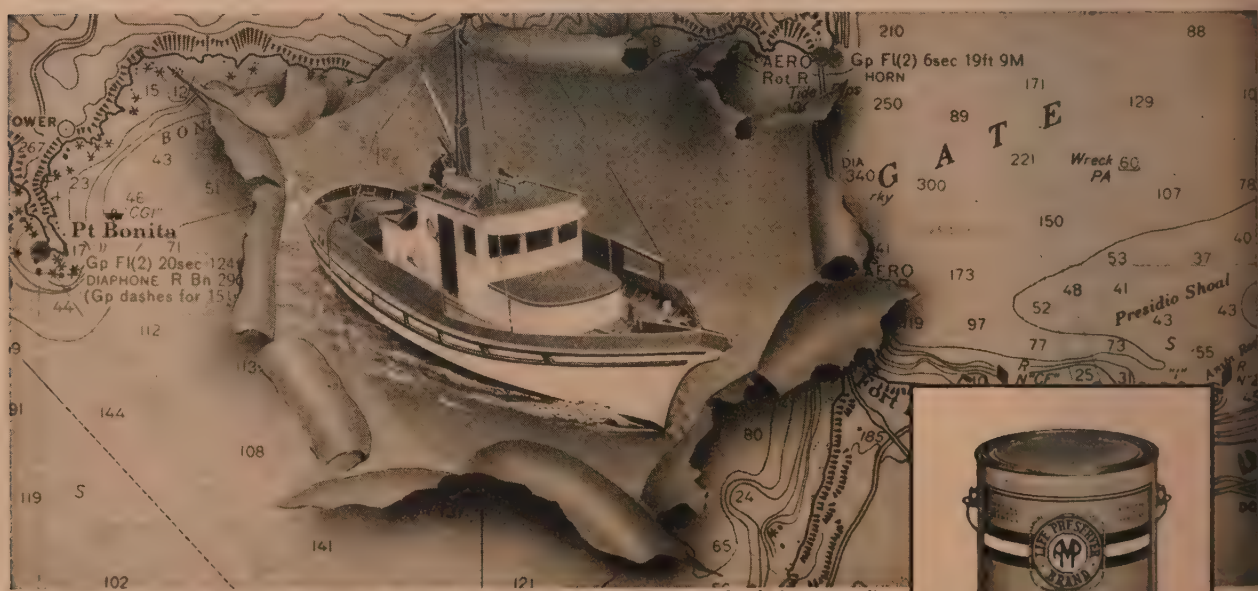


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# ESKIMO GILLNETTERS—

## A New Element in Alaska Industrial Fishing

● Eskimo gillnetters provided a new element among the fishermen who harvested the great 1961 Red Salmon run on Bristol Bay.

These were Alaskans, generally from the Kuskokwim River in the Bethel area, and most of them had never fished on Bristol Bay before. Because of their inexperience, almost without exception they were assigned "conversions," which had been sailboats in the years before power came to the Bay; and which had been converted to power with rebuilt sterns and make-do engine installations.

Despite their inexperience in the great, wide waters of Bristol Bay; in the favored fishing spots; in the vagaries of the tides; in the fiercely competitive fishery there—

Despite their smaller, older, low-powered boats, the Eskimo fishermen generally were rated by the canneries which employed them as satisfactory producers.

Because of their inexperience and the generally lower effectiveness of their gear, it is difficult to arrive at an exact relative performance rating for the Eskimoes. On a straight number-of-fish-produced basis, however, one of the outfits using several Eskimo gillnet crews reported their average catch was 56% of that of the experienced non-residents fishing the large, fast, new boats.

● Eskimoes have long been employed in the canneries on Bristol Bay, and at present make up a very substantial percentage of the plant workers.

As fishermen, however, they are newcomers on the Bay, and 1961 was the first year in which they were used in even moderate numbers.

As in the plants, those fishing proved willing workers, pleasant, peaceable, and free from complaints. They took good care of the boats and gear assigned to them and—for beginners—turned in a very creditable performance.

Most of the Eskimo fishermen came from the Bethel area on the Kuskokwim, as do a substantial proportion of the Eskimo cannery crews. For cannery work, however, the villages of Nelson Island and the Yukon delata area also send substantial numbers, supplementing the residents of the Bristol Bay communities such as Dillingham, Naknek, Egegik, Pilot Point and other villages.

**HENRY EVAN**, above, and **ROLAND PHILLIP**, partners in the operation of a Red Salmon converted gillnetter on Bristol Bay, are typical of the Eskimoes who in 1961 showed themselves to be a new element of promise among Alaska fishermen. In this close-up they are pughing their catch into a "sock" brailer, one of the modern and labor-saving methods of delivering salmon to power scow on the fishing grounds.

**Eskimo Cannery Workers** in the midst of a mug-up. These willing, pleasant and effective Alaska natives provide an increasingly important part of the cannery crews in the Bristol Bay operations.

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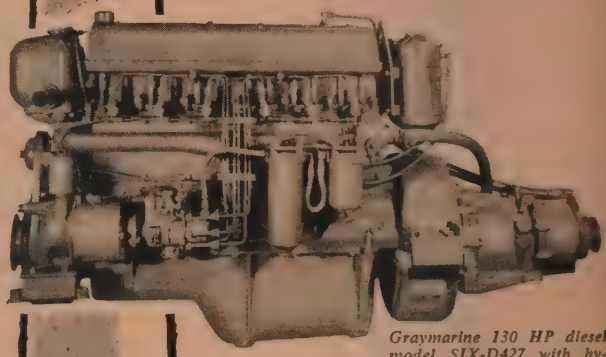

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# 1961 Notebook on Japan Fisheries

# DIVERSIFICATION

## A Strong Trend in Fish Business

• Diversification of operations is a vital fact and a strong tide in the affairs of Japan's great fishing companies. All of them are seeking to broaden their base of business.

There are a variety of reasons for this, some of them of course the usual ones influencing corporate diversification, but others with backgrounds peculiar to the situation in Japan.

Thus the objectives sought in diversification as it is manifested in the Japanese companies' activities today would include:

1. the broadening of a company's basic position in order better to resist depression in a business so notoriously volatile as the fisheries;
2. to increase the economic return from the company's basic activity by utilizing to the best extent and at the greatest level of earnings the products and by-products of its primary activity;
3. the utilization of existing plants in seasonal activities and at times when they might not otherwise be actively producing;
4. employment of a company's "know-how" in the food producing business;
5. filling out its product line in the interests of more comprehensive marketing and fuller use of its established brand.

• This trend to diversification, for example, sees Nichiro Gyogyo as an important factor in the baking business, notably the bread baking business, in Japan. It sees Taiyo Gyogyo active in the pearl business, with beautiful new stores located in the arcades of the new Palace Hotel and the Hotel New Japan.

Nippon Suisan, frequently called Nissui in the vernacular of the Japanese fishing industry, proposes the construction of a large inland food packing plant a few miles outside of Tokyo where it will concentrate its fish sausage business and also will engage in the manufacture of cheese. This is not cheese made from fish protein but cheese manufactured from milk. This is among the western foods which has achieved some popularity in Japan in recent years.

Virtually all of the great fishing companies are now engaged in the poultry business, raising chickens to the broiler stage for meat. Notable among these firms is Kyokuyo Hogei, basically a whaling company, which began its diversification some years ago by entering into the salmon business and subsequently into crab canning, and more lately entered into the tuna industry with a large plant, perhaps the largest tuna cannery in Japan, located at Shimizu. Mr. K. Hoketsu, president of this company, is particularly expressive in discussing this trend toward poultry growing on the part of the fishing companies. He says: "We simply must get every possible profit out of the fish we catch and process. Particularly in the depressed state of the world's fish meal business today, we find it more profitable to market out fish by-products by putting them into chickens and selling the chickens than by putting them into paper bags and selling the goods to lead manufacturers. We believe that poultry is the fastest way of converting protein into meat and also perhaps the most efficient way. This trend toward poultry raising in Japan has one main drawback. We must import a considerable part of the feed. We are able to supply the protein and carbohydrates, but we have not as yet found a substitute for wheat bran and wheat milling products, which thus far we must import.

"It is a disturbing factor to us that today the price of broilers in the United States and in Japan are on a virtual parity. In short, this is proof of the fact that in spite of the economies of using our own by-products and the relatively low costs of many products and services in Japan, our import costs and necessities are a serious handicap.

"Again, virtually all of the companies now are engaged in fur farming as a means of utilizing fresh fish scrap for mink feeding without the necessity of manufacturing it into fish meal. In short, much of the scrap from the non-oily fishes can be fed directly to fur bearing animals with a high economic recovery.

"This of course is common practice in the Pacific Northwest of the United States, but in Japan it is the great fishing companies themselves who are engaged in the fur growing business, while in the Pacific Northwest states the fish producing companies sell their waste material to the specialized fur growers."

## Japan Trawls Herring Successfully Off Aleutians

In 1961 Japan's fishing companies, or some of them, successfully trawled herring in the waters along the Aleutian Islands, in the first general utilization of this resource following the action of the International North Pacific Fisheries Commission in 1960 in withdrawing the herring resources of the high seas off Alaska from the provisions for abstention under the North Pacific Treaty.

The fishing was done basically with mid-water trawls, operating on the high seas far off shore from the Aleutian Islands. The success of these operations was remarkable, actually more than the companies had anticipated, at least to the extent that the market declined sharply and the fishery did not prove profitable at the reduced sales levels at which it was necessary to sell the product.

Mr. K. Hoketsu, president of Kyokuyo Hogei, reported that the fishery yielded readily and with very large fat fish. His company's activities basically were designed to freeze the herring and in some cases to salt it for use as food, rather than to reduce it to fish meal. The mid-water trawls functioned very effectively.

**Close-up of Outboard Skiff** gillnetter beached before the floating cannery **Bering Sea** which she and five others like her served. There is some reason to believe such boats may be seen on the Bay in greater numbers in future.

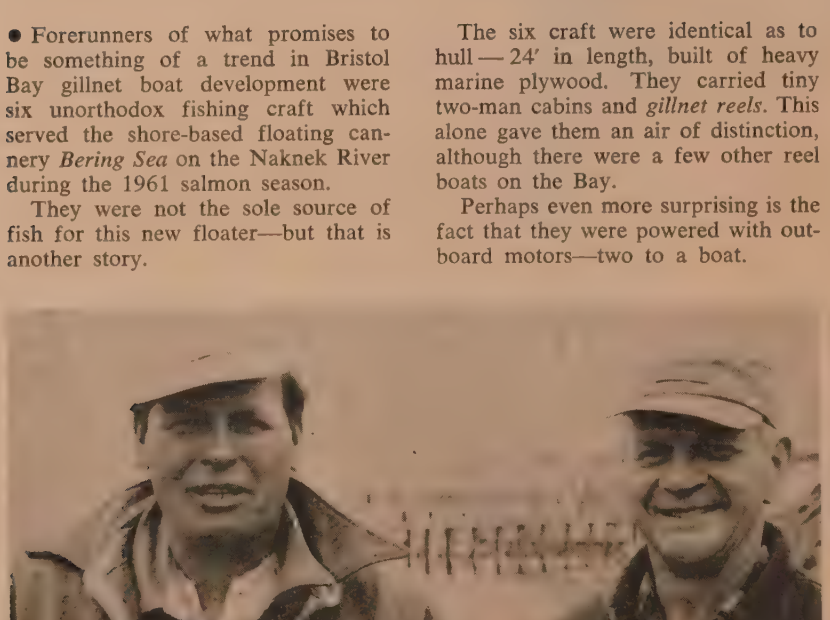
# Six Outboard-Powered Plywood Gillnetters Dare Bristol Bay

● Forerunners of what promises to be something of a trend in Bristol Bay gillnet boat development were six unorthodox fishing craft which served the shore-based floating cannery *Bering Sea* on the Naknek River during the 1961 salmon season.

They were not the sole source of fish for this new floater—but that is another story.

The six craft were identical as to hull — 24′ in length, built of heavy marine plywood. They carried tiny two-man cabins and *gillnet reels*. This alone gave them an air of distinction, although there were a few other reel boats on the Bay.

Perhaps even more surprising is the fact that they were powered with outboard motors—two to a boat.



**One Fisherman, One Canneryman**—Mike Vojkovich, left, Puget Sound and Alaska gillnetter, with Martin Hegeberg, superintendent and partner in the Bering Sea Fisheries, Inc., operating a shore-based floating cannery at Naknek in 1961 for the first time. Mike was not operating one of the 24′ outboard gillnetters.

All the outboard of this Bering Sea Fisheries, Inc., fleet were Gales. The 35-hp. models were most popular, and some of the boats carried two of these. Others, seeking more power, carried one 35-hp. Gale and one of 60-hp.

The little boats were hardy, too. A pair of them made it from Valdez, at the head of Prince William Sound, to Naknek under their own power, save for the Iliamna Portage, of course. These hardy craft ran across Prince William Sound; then skittered around Kenai Peninsula and across the unfriendly waters of Cook Inlet with their heavy load of glacial silt and shocking tides.

From Iliamna Bay at the Cook Inlet side of the portage they were gotten onto trucks and hauled overland, up and over the portage road to Pile Bay at the head of Lake Iliamna. They were still a couple of hundred miles from Naknek, which they reached after a 90-mile run down Lake Iliamna to Igiugig, and then down the Kvichak River to Koggiung, and on at last to Naknek. A nice trip, if you like scenery and thrills more than safety and comfort.

● But let's get back to the skiffs — The other four came into Bristol Bay aboard the *Bering Sea*.

The skiffs were rigged with stern rollers on the port side of the transom, and the net reel offset on that side also, thus compensating for the weight of the two big Gale motors on the starboard side.

Power reels have not hitherto been popular for Bristol Bay gillnetting where the fish often come so fast that they cannot be picked as they come aboard. This makes it necessary for fish and net together to be dragged into the boat. To wrap them around a reel would quickly clog the reel by blocking the clearance below. Further, it would damage the fish; and finally might render the boat unstable.

In the case of the *Bering Sea* skiffs when they hit heavy fishing—which they did—the fishermen just detached the tail-end of the net from the reel and used the reel itself as a giant live roller to help bring-in the net, which was piled in the hold of the boat just forward of the reel.

● We spoke of a trend awhile back. Early fall conversations around Salmon Bay, Seattle, and doubtless elsewhere in the human eddies where salmon fishermen school-up, there was talk that another year would see more "compacts" on Bristol Bay, "economy jobs," you might say, costing only a fraction of the price of a standard 32 Bristol Bay gillnetter, but big enough for the kind of fishing which is ex

**Anchored Out**—One of the Bering Sea Fisheries' 24-ft. plywood gillnet skiffs with her two Gale kickers turned up, anchored in the Naknek River during a closed fishing period. That's the great NN Cannery of Alaska Packers Association on the opposite bank.

ected there for the next two-three ears.

There was talk of nets designed for heir use; nets which would work well in power blocks; nets whose cost would be commensurate with that of the boats fishing them.

So we may be seeing "jitney gillnetters," just as a few years back "jitney seiners" appeared around Kodiak Island.

Power to drive the gillnet reels is provided by Clinton air-cooled gas engines installed in the skiffs.

## Mexico Slaps Ban on Foreign Fish Nets

Mexico has officially closed the importation door to fish nets and webbing manufactured outside the Republic. By a decision of the Federal Department of Industry and Commerce, published recently in the Official Daily, the Department acted under legislation previously enacted and placed nets and webbing on the restricted list.

Industry sources said that even after the effective date of the ban, some nets and webbing were being permitted to enter the Republic under special license, mostly to fill orders placed before the restriction became effective.

## Dr. Chapman Sees Plenty Fish

There are about 400 million metric tons (2200 lbs.) of fish swimming around in the world's oceans, according to the estimate of Dr. Wilbert M. Chapman of The Resources Committee, San Diego, Calif.

Dr. Chapman made his estimate shortly after returning from the International Conference on Fish in Nutrition held in Washington in September under auspices of the Food and Agriculture Organization of the United Nations. His estimate is a little above that of the US Fish & Wildlife Service, which officially says the total world fish supply is only 150 million metric tons, with a practical potential catch of 55 million metric tons.

Dr. Chapman pointed out that there are vast stretches of ocean untouched so far by commercial fishermen, and many species of fish that are quite wholesome and tasty, but are not fished for, such as hake and saury.

Dr. Chapman said the present world catch of about 38 million metric tons can be increased tenfold, "thereby solving some of the world's food shortage problems."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By all means, *do* mix pleasure with business! Fun's the stuff that makes the sale. Don't miss the 1962 Seattle Boat Show. It's billed to the public as the "showboat" of boat shows . . . more "show" per booth than ever before. Looks like a smash hit! Everything new for 1962 . . . everybody's boats, motors, equipment . . . but it's much more than a merchandise mart. It's going to be *fun* . . . sales-priming fun! If you still get a kick out of making a sale, plan to go to the Seattle Boat Show.

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## Japan's Bering Sea Halibut Catch Far Under Forecast

● Semi official reports of Japan's Bering Sea halibut catch through early September indicated that the total at that time was approximately 8,000 metric tons, which is a long way short of the 40,000 metric tons which Japan fishery press earlier in the year reported as the official estimate of the 1961 catch.

In spite of reports commonly circulated in Seattle that the Japanese halibut were of a species not generally accepted as halibut in the Canadian and the United States markets, it now appears in Tokyo that there is no question that the halibut being quoted by the Japanese to the export trade as halibut is in fact *hippoglossus stenoletsis*.

In short, these are true Pacific halibut.

Japanese longliners are not getting only halibut in their Bering Sea operations. In this connection, it is known that Japanese frozen sable fish was delivered in Seattle before October was more than a few days old, and that examiners there reported the quality "excellent."

Whether the Japanese frozen sable fish came from the longline operations conducted primarily for halibut, or whether it was a product of the bottom fishing activities in Bering Sea is not altogether plain.

## B.C. Herring Fishermen And Operators Disagree

Herring fishing in British Columbia waters appeared to be headed for another stalemate this fall because of disagreement between fishermen and operators over prices, following expiration of a two-year agreement in October.

The United Fishermen and Allied Workers Union has asked for a return to the $13-a-ton price stipulated in the 1959 contract. Spokesmen for the Fisheries Association of B. C. indicated that such a price would not be acceptable, although they agreed to negotiate. During the past year the prevailing price has been $8.80-a-ton, as the operators found that owing to market conditions they could not afford $13.

The union contends that meal prices have returned to $129.50-a-ton compared with $94.50-a-ton quoted by the operators when the 1959 agreement was abrogated, and that Peruvian meal producers, also referred to as a serious competing factor by the operators at that time, were now restricted to quota exports.

Organized fishermen planned to cease fishing October 16 and to remain inactive pending a settlement.

Production of herring oil and meal has been relatively good this season. On October 7 a total of 1,292,021 imperial gals. of oil and 7,086 tons of meal had been processed.

## New Engine Ideal For Seine Skiffs

The new 85-hp Cerlist Model 3-M is turning out to be an ideal engine for seine skiffs, according to William Norton, Jr., Western Cerlist manager.

The most recent installation in a 20-ft boat uses a 2½ to 1 Capitol Gear and turning a Federal 22 x 16 wheel.

Operating reports kept on the installation show that the engine produces plenty of horsepower on the wheel where it counts with good fuel economy. A number of the new engines were installed in 1961 in Northwest and Alaska boats principally in the salmon fleet.


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# NOTES On NETS—

## Why Were Puget Sockeye Gillnets So Very Effective This Season?

● Extraordinary relative effectiveness of Puget Sound and Canadian Strait of Juan de Fuca gillnets provoked a lot of discussion during the 1961 season — particularly among the purse seiners. They couldn't understand why a 32-footer with only one or two men often caught more than half as many fish as a big, expensive seiner with a crew of eight or nine.

Funny thing, too; for the gillnetters have been getting the worst of it for several seasons past. For example, in 1957, the cycle year of the 1961 Sockeye run, the gillnetters took 17.9% of the U. S. Puget Sound catch; and in 1961 their percentage was 34.9%. Moreover, there were more gillnetters working the Sound in 1957.

Some folks say it was because the U. S. gillnet minimum mesh was reduced to 5¼" in 1961; but that doesn't sound too convincing when you note that the same condition prevailed in Canada, where there wasn't any change. Of course the Canadians are allowed to use smaller mesh if they wish, but in general they do not do so. Their reasoning generally is that, while a small-mesh net may catch more small fish, and do better in years when the average size of the salmon is small, it likewise misses the big ones.

Where fish are bought by the pound, as on Puget Sound, it's definitely better to catch the big ones. Incidentally, the average size of the Fraser River Sockeyes was exceptionally large in 1961, which is another argument, the theory that the gillnetters enjoyed a good year because smaller mesh was permissible.

During the two previous seasons, when the gillnetters found poor fishing a lot of them tried adding a strip or so to their nets and found it helped.

So at the start of the 1961 season a lot of the gillnets, in the American fleet at least, were very deep, as much as 120 meshes. As the season went along and the gillnet fishing proved to be so good, the fishermen found they were taking few fish in the deeper part of their nets. Accordingly, many of them used the closed periods to cut down their nets again, and during the latter part of the season 90 meshes was about as deep as they went.

## What the Japanese Report About Monofilament Salmon Gillnets

● Monofilament nylon gillnet—called "transparent net" by the Japanese—was used to the extent of 5,000 shackles among the fishing vessels serving Japan's North Pacific mothership fishery in 1961.

Special report to *Pacific Fisherman* from Japan says that an additional 1,200 shackles were fished by the land-based operations out of Hokkaido, fishing south of 148° North latitude; and several hundred more in the Japan Sea Pink salmon operation.

The rate-of-catch for the monofilament nets is reported to have averaged 2.5 times as much as for conventional multifilament nylon netting; and to have run as high as 7:1 in favor of the "transparent nets."

Efficiency of the net is offset in some degree by difficulty with its knot-strength and lack of flexibility. However, these difficulties have been somewhat overcome.

Taito Fishing Net Co., Ltd. (Taito Gyomo K.K.), an affiliate of Taiyo Gyogyo K.K., working with Toyo Rayon Co., Ltd., nylon fiber manufacturing house, found that the problems of knot-strength and flexibility could largely be overcome by using a filament with a flattened oval cross section in place of the usual circular section.

● Another problem encountered in developing effective monofilament fish netting was the fact that the filaments, while transparent, tend to reflect light from the surface of the fiber. Experimentation showed that this reflection could be prevented by dyeing. Obviously, this must be with a light color, else the transparency of the net would be sacrificed. After careful tests a light gray dye was found best to eliminate the reflective character of the fiber without increasing its visibility.

Mending the monofilament netting still presents a serious problem, and efforts are continuing in an attempt to develop a better method of repairing damage that the single knot normally used with this monofilament web.

● For reasons not altogether plain, it appears that some operators who have been using monofilament netting experimentally for several years believe that it should be combined in the gear with separate panels of the normal Amylan netting in the proportion of two or three panels of conventional netting to one of the monofilament. Due to knot-strength problems, overall cost of the "transparent" web in use is said to exceed that of multifilament gillnet. While first cost of the monofilament may be less, its short life tends to render the full season cost higher.

● In announcing the decision of the Canadian Department of Fisheries not to permit the use of monofilament gillnets in 1962, W. R. Hourston, Pacific area director, said that a considerable volume of orders was being placed for nets of this type for use in 1962. He then went on to say:

"In view of this, the matter has been further reviewed by the Department and I have been instructed to notify all concerned that the use of the monofilament type of net will be banned in 1962. The Department regrets that such action has to be taken in view of the fact that preliminary evidence indicates its use could improve the efficiency of the salmon gillnet fishery. It will be recognized, however, that the efficiency of the existing types of gear is more than adequate to harvest the available supply of salmon.

## Seal Rock—A New Patrol Vessel for B.C.

Latest addition to the growing fleet of patrol vessels operating off the coast of British Columbia for the Canadian fisheries department is *Seal Rock*, completed recently at the Bel-Aire Shipyard, Ltd., Vancouver, B. C.

Although it was built to replace a patrol unit on the Fraser River and Gulf of Georgia, *Seal Rock* will temporarily go into service on the Skeena.

Designed by Robert Allan, the Vancouver naval architect who has been responsible for the planning of so many fishing vessels in B. C. waters during the past decade or so, the new craft has a length of 45', with a 12' beam. Top speed has been estimated at between 10 and 11 knots, with a cruising range of 400 miles.

Yellow cedar was used in hull construction, with fir scantlings and oak frames, along with marine quality waterproof plywood for decks and bulkheads.

The vessel carries a crew of two with accommodation for a fishery officer. In addition, it boasts a new interior arrangement of galley and salon providing additional space and comfort for crew members. A 12' fibreglass lifeboat and workboat is stowed on the cabin roof and an RFD inflatable four-man rubber life raft is available for emergency use.

Power plant consists of a GM diesel producing 216 shaft horsepower at 2100 rpm. maximum output or 145 shaft hp. continuous rating at 1800 rpm.

## Monofilament Net Ban Spelled Out in Canada

Implementing the 1962 ban on use of monofilament salmon gillnets in British Columbia, the Department of Fisheries has spelled out in greater detail the restrictions that will actually apply.

In the new regulations, "monofilament" means any single filament having more than 50 denier; that is, weighing more than 50 grams per 9,000 meters of filament.

Proposed text of the order is: "During the calendar year 1962, no one shall fish or catch salmon with gillnet or drift-net gear, the web or any portion of the web thereof which contains monofilament in either single or multiple strands."

Wording is not yet final since it is subject to revision by the legal service, but W. R. Hourston, director of the Pacific area, points out that the definition has been so designed as to preclude the possibility of circumvention by the weaving of multi-monofilament web.

The department will continue to investigate the monofilament problem during the coming year for a more complete assessment of the possible effects of this new type of gear on the salmon fishery.

## Vessel Owners Move

Vancouver, B. C., offices of the Fishing Vessel Owners Association of B. C., Pacific Coast Fishermen's Mutual Marine Insurance and Pacific Trollers Association have been moved from 193 Hastings Street to 1195 West Pender Street.


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## Big-Eye Tuna Abundant

Unusual proportion of Big-Eye tuna are reported in the catches being taken by Japanese longliners fishing equatorial areas in the eastern Atlantic off the coast of Africa.

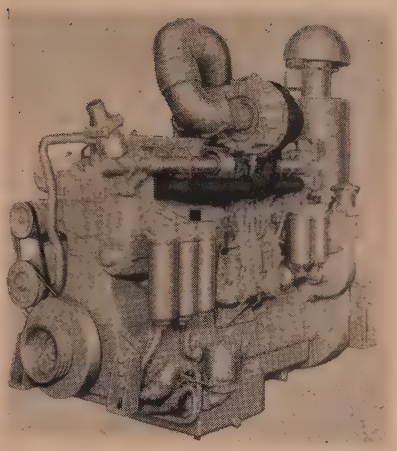
Where Yellowfin usually dominate the catches in this area, this year Big-Eye compose from 60 to 70% of the landings. Most of this fish is delivered to Italy.

## New Combo Boat Built

The Newport Beach, Calif., fishing fleet, small but busy, acquired a new unit recently when Crystalliner Boat Works of Costa Mesa completed a new 38-ft. fantail combination fishing vessel for Dick Bolton. The new boat is powered with a four-cylinder Ford Osco 68-hp. engine.

## Japan Studies Fiji Islands For Tuna Expansion

A seven-man investigating party headed by T. Matsuda and T. Akaji proceeded from Japan to the Fiji Islands recently to study the possibilities of developing a fisheries enterprise concerned primarily with tuna in that group of islands.



## New, Smooth Operating Fairbanks, Morse Engine

Fairbanks, Morse & Co., long a heavyweight in the diesel field with low-speed and medium-speed engines, today announced a new series of smaller, faster engines — the Model 50A.

"The 50-A is a multi-purpose workhorse that will handle many jobs below the range of our larger, heavier engines," Sheldon K. Howard, director of marketing, explained. "It is particularly well adapted for installations where long periods of uninterrupted running are required."

All models in the line operate at 1800 revolutions per minute, and the units up to 100 horsepower are available in speeds up to 2200 rpm. The over-all range will go from 37 to 670 hp.

"In the marine field, the Model 50A engine will be useful for propulsion of fish boats."

## Liberian-Japanese Fishery Enterprise Is Launched

Nigerian Shipping and Trading Co., primarily a fishing and fish-distribution enterprise, organized jointly by Nigerian and Japanese capital, is in the process of development.

The first-year program calls for construction of six trawlers of the 100-ton type, building of a freezer and cold storage of 1,000 tons capacity, and the construction of a number of refrigerated vehicles for distribution of fresh and frozen fish.

Japanese of course note that, while no mention is made of tuna in the announcements, trawlers of the type specified are ideal for easy conversion to tuna longlining, in case operations on bottomfish should disclose an attractive tuna resource.

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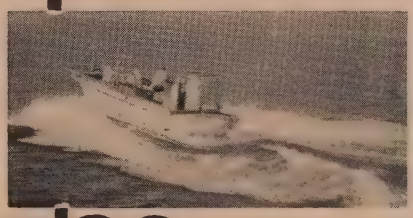

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# "A Tall Ship, and a Star To Steer Her by" . . .

● John Masefield, then poet laureate of England, wrote the head for this story, years ago in "Sea Fever," but he might have been writing about *Fan Isle*, one of the new additions to the British Columbia salmon trolling fleet, the trim, 37-footer owned by well known fisherman Frank Amstutz, of Nanaimo.

Designed by Edward Wahl and built at Prince Rupert Boatyards, her statistics are: length, 42'; beam, 12.1'; draft, 6.4'; gross tonnage, 14.7; registered tonnage, 10.

*Fan Isle* is powered by a turbocharged and aftercooled Caterpillar D333 marine engine, which can develop up to 270 bhp. at 2200 rpm. It is believed to be the most powerful engine installed in a Canadian salmon troller up to this time.

The compact D333 drives through a 3.39:1 reverse and reduction gear and swings a three-blade, 42 by 26 propeller, up to 650 rpm. It is fitted with a trolling device but early trials indicate that the engine runs at speeds low enough to make the trolling device unnecessary.

Other equipment includes Wagner hydraulic steering, radio echo sounder, automatic pilot forward and aft.

On performance trials in Vancouver Harbour the *Fan Isle* averaged 10.5 knots and better. Stability on high speed turns was good and the heel of the vessel very fine. Maneuverability is excellent and at high or low speeds "she is a joy to handle."

This is the third troller Capt. Amstutz has built and all of them have been caterpillar powered. Capt. Amstutz is married and has two sons, one of whom fishes with him.

## Big-Eye Tuna Hatched Artificially by Japanese

Successful artificial hatching of Big-Eye tuna larvae was accomplished recently by Susumu Kume, a Japanese scientist of the Nakai regional fisheries laboratory, working aboard the Mei prefectural investigation vessel *Taisei Maru* in the Indian Ocean.

Encountering a population of Big-Eye near the spawning stage, Mr. Kume fertilized eggs from Big-Eye females in a laboratory beaker, in which sea water was maintained at 28-29° C. Within 40 minutes development could be observed in the eggs. After 10 hours the larva was visible in the egg, and at 21 hours the larval fish 1.5 mm in length emerged.

The larvae lived only about 10 minutes after hatching. The experiment was successful in producing one living larva two times out of three.

## Power for "Little Kay"

Lindwall Boat Works of Santa Barbara has completed a repowering job on the well-known swordfish-albacore vessel *Little Kay*, owned by Mr. and Mrs. Ed Fabin of Santa Barbara. *Little Kay* acquired a new Ford Osco 100-hp. engine with a Paragon 3:1 reduction gear, increasing her speed about three miles per hour, according to Paul Lindwall. The vessel is a Loman-type hull, 38' long by 10½' beam. The new engine was supplied by Fellows & Stewart, Osco distributors, Terminal Island, Calif.


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Section of PACIFIC FISHERMAN —

*News and Views of National Trade in Fish and Shellfish*

November 1961

# British Salmon Consumer Loser With Entry into Common Market

● Even though the United Kingdom's entry into the European Common Market could interfere with British Columbia's sales of canned salmon overseas, the province's fishing industry believes the decision is for Britain to make.

In fact, members of the Fisheries Association of B.C. believe that the Canadian government has been making a mistake in trying to dissuade Britain from a course that seems not only realistic but inevitable.

In a letter to Canada's Minister of Trade George Hees, the association through H. Norman Hyland, vice president, B.C. Packers, points out that Britain has been a good friend of the B.C. industry in the past and that it will continue to be so in the future, regardless of trading blocs.

Under commonwealth preferential agreements, canned salmon has entered the U.K. duty free. Salmon from other countries such as Japan, Russia and the U.S. pays a 5% ad valorem duty.

"It is our understanding," wrote Mr. Hyland, "that the proposed common tariff which will apply when the Rome Treaty comes into force will be 20%." Presumably that would also apply to Britain when and if she joins the Common Market. But the U.K. is by far the most important buyer of B.C. canned salmon in Europe, accounting for 90% of the trade in that area. On a three-year average, the U.K. took 392,000 cases of 48 lbs. each. Belgium was second, with only 27,000 cases.

Mr. Hyland continued:

"It would seem that in canned salmon we have an excellent example of an import commodity which is of very much greater importance to the U.K. than to the other members of the Common Market.

"The cost of the proposed 20% tariff would fall almost entirely on the British consumer, whose salmon purchases up to now have ranged from free entry of Canadian salmon to a maximum of 5% on Japanese, Russian and American.

"Based upon our marketing experience in the U.K., we know that the average British consumer will react unfavorably to higher canned salmon costs. The per capita usage of canned salmon will undergo a serious decline followed by substantially reduced imports of Canadian salmon."

It is argued that since the total world supply of canned salmon comes from outside the Common Market group, a tariff as high as 20% would not be justified. The trade would not seriously affect the Germans, Italians or the French because they don't eat much salmon. But it would hurt the British, and British trade officials could probably be depended on to take appropriate action.

## Van Camp Stock Split And Dividend Increases

A two-for-one stock split, followed by a 33% increase in dividends, is proposed by Van Camp Sea Food Co., to become effective for stock of record Nov. 10.

The split stock will be paid quarterly dividends of 10c per share, starting next Feb. 1. This is a one-third increase over the present rate on the 1,700,000 shares now outstanding.

Within the past year Van Camp has paid 100% stock dividends in last November and again last March; and raised its cash dividend 50% in May.

## Bumble Bee Seafoods Earnings Set Record

Net earnings of Columbia River Packers Association, Inc., during the last fiscal year of its corporate existence under that name, reached $1,428,625, a new record for the house in its 61 years of canning salmon and other seafoods.

Operating earnings were also a record, $1,220,895 after allowing for deductions of non-recurring capital gains of $207,730.

Earnings per share were $5.27, compared with $3.44 in the previous fiscal year.

In his report to the stock holders, T. F. Sandoz, president, noted that the company's sales for the fiscal period ending April 30, 1961, were $27,919,736, an increase of 20% over the previous year, and marked the fifth consecutive year in which sales established new records.

During the past year venerable Columbia River Packers Association, Inc., became a wholly owned subsidiary of Castle & Cooke, Ltd., and its name was changed to Bumble Bee Seafoods, Inc., following the modern business trend of tying a company's name and identity to that of its trade mark or leading brand.

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# FDA Fish Flour Caprice Draws Angry Blast from Congressmen

• Capricious policies of the U.S. Food and Drug Administration came under fire in Congress this autumn, when FDA threw its usual block against the manufacture of fish flour economically feasible, and sought to prohibit manufacture of such a product of American industry as a high-protein diet supplement.

Objection was on "esthetic" grounds.

To which Senator Paul A. Douglas of Illinois roared in the Senate:

"I had never thought that the Food and Drug Administration was set up to deal with esthetics. I thought it was set up to deal with public health."

• The storm arose when FDA proposed definition and standard of identity for "whole fish flour" which was obvious designed to block industry's economic development of the product by declaring "adulterated" human food prepared from whole fish with its superior vitamin and nutritional qualities.

In justifying its position, FDA sought refuge in its old concern lest food should be "esthetically" objectionable. It accepts Liederkrantz as esthetic of course.

This triggered the Congressional avalanche and Congressmen Pike of New York and Keith of Massachusetts introduced legislation to amend the Food and Drug law to exempt from the curse of esthetic "adulteration" any "sea food product which is derived from whole fish, provided such product is processed under sanitary conditions and after processing is nutritious and in no manner harmful to the health of consumers thereof." *That* would hold 'em.

• Another caprice of FDA which Senator Douglas might also feel worthy of a blast is that by which FDA declares use of nitrates and nitrites in cured fish products is unwholesome, despite the fact that they have been used for generations in ham, corned beef and other meat products; and that their use in cured meats is sanctioned and accepted by the United States government through its Department of Agriculture.

# Seattle Market

Market prices currently quoted at presstime by Pacific Northwest brokers and cannery sales department, cases of 48 tins, unless otherwise specified, good quality, as reported by the U. S. Bureau of Commercial Fisheries, Market News Service.

**Items and Packages**

| Puget Sound | Per Case |
|---|---|
| Sockeye, halves | $ - 25 |
| Sockeye, quarters | 14 - 15 |
| **Alaska** | |
| Red, talls | 34 -*37 |
| Red, halves | 21.50-*25 |
| Red, quarters | 14 - |
| Red, 4 lb. (12) | - 36 |
| Pink, talls | - 28 |
| Pink halves | 16 - 16.50 |
| Pink, 4 lbs. (12) | 29.00- |
| Med. Red, talls | 31 - 32 |
| Med. Red, halves | 18.50- 20 |
| Med Red, quarters | 12 - |
| Med. Red Alaska, 4 lb. (12) | 33.50- 34 |
| Chum, summer, tall | 25 - 26 |
| Chum,summer, halves | - 14.50 |
| Chum, fall, 4-lbs. (12) | - 26 |
| Chinook, talls | - 32 |
| Chinook, halves | - 19 |
| **Columbia River** | |
| Blueback, halves | - 29.50 |
| Blueback, quarters | 16 - 17.50 |
| Chinook, fancy, halves | 28.50- 29 |
| Chinook, fancy, quarters | 16.50- 17 |
| Silver, quarters | - 13 |
| **Tuna, Northwest Pack** | |
| Albacore, fcy., 7 oz. | 13 - 13.50 |
| Yellowfin, s/pack, 7 oz. | - 11.00 |
| Yellowfin, chunk, 6½ oz. | 10 - 10.60 |
| **Tuna, Columbia River Pack** | |
| Albacore, fcy., 7 oz. | 15.50- 17 |
| Albacore, fcy., 3½ oz. | - 9.50 |
| Albacore, chunk, 6½ oz. | - 13.75 |
| Lightmeat, fcy, 7 oz. | 15.25- |
| Lightmeat, fcy., 3½ oz. | 9.00- |
| Lightmeat, chunk, 6½ oz. | 10.50- 12.50 |
| **Canned Shrimp** | |
| Northwest: 4½ oz. wet pack | 7.25- 7.50 |
| Alaska: Tiny (over 17 per oz.) | 7.25- 7.50 |
| Small (10-17 per oz.) | - 8 |
| Medium (6-9 per oz.) | - 8.50 |
| **Canned Crab** | |
| Dungeness, 24, 6½ oz. | 12.50- 13 |
| Dungeness, 24, 3½ oz. | - 8.25 |
| King, 24 - 15 oz. | - 32 |
| King, fcy., 7½ oz. | 31 - 33 |
| King, std., 24, 6½ oz. | - 14.50 |
| King, std., 24, 7½ oz. | - 16 |

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# What Alaska Kings and Silvers Eat

• What do Alaska troll salmon eat? Fishermen know that herring is tops, but there's a lot of variation in opinion as to the minor items in diet.

Latest scientific determination on the point appears in a just-published report—"Special Scientific Report — Fisheries No. 379 — of the U. S. Fish and Wildlife Service. In this document Gerald M. Reid, fishery research biologist, reports on studies of the stomach contents of troll-caught Silver and King salmon in Southeast Alaska waters.

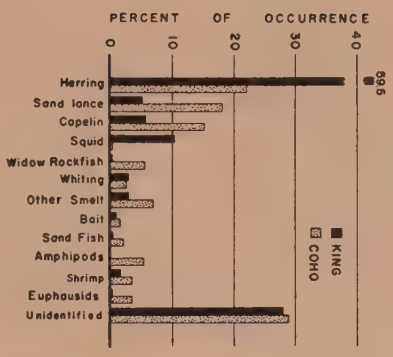
The two accompanying graphic presentations give the meat of the report, showing (1) the frequency of the major food items for both salmon species in the several sampling areas; and (2) the favorite foods of Silvers and Chinooks separately.

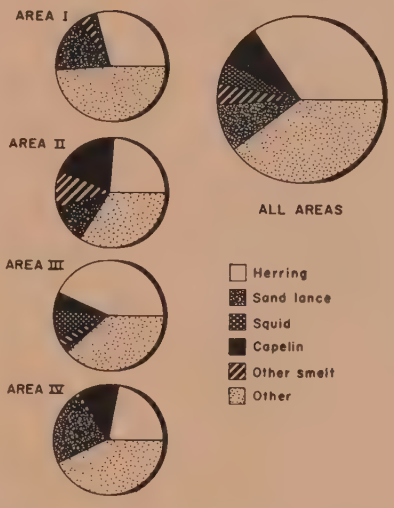
The sampling districts referred to in the graph with the circular "pie charts" are: I, Dixon Entrance; II, west coast of Prince of Wales Island from Cape Addington north to Sumner Strait; III, inside waters of Chatham Strait, Frederick Sound, Seymour Canal and Lynn Canal; IV, Sitka, Peril Strait, Icy Strait and north to Dry Bay.

Among the conclusions reached by Mr. Reid were:

"Herring accounted for the largest percentage of the five organisms eaten most frequently by both species of salmon."

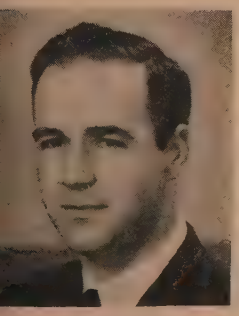
"The diet of Silver salmon was found to be much more varied than that of King salmon."




The five principal items in the food of troll-caught salmon in Southeast Alaska are: Herring, Sand Lance, Capelin (Surf smelt), and Squid.

# Modern Tuna Cannery For Bumble Bee Seafoods



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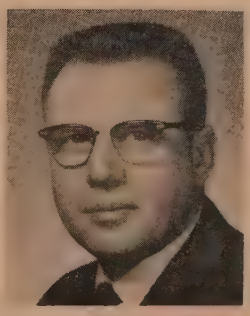
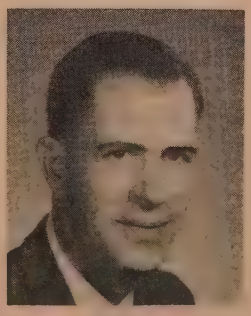


O. D. Howell



L. W. Olp

Purchase of a large cold storage plant and warehouse in Cambridge, Maryland by Bumble Bee Seafoods, Inc., subsidiary of Castle & Cooke, Inc., was announced today. The announcement was made simultaneously in Astoria, Oregon by T. F. Sandoz, President of Bumble Bee, and in Honolulu by Malcolm MacNaughton, President of Castle & Cooke.

The properties are being acquired

continued on page 37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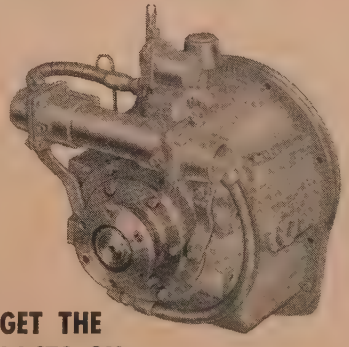

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**Outstanding corrosion resistance**—Alloy 400 resists corrosion by brackish and sea water. Saves you money by prolonging your shaft's life.

**Long service life**—MONEL alloy 400 shafts withstand the punishment of day-in, day-out operation—help reduce the danger of untimely, costly haulouts.

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rom Consolidated Foods Corporation f Chicago, and will be owned and perated by Maryland Tuna Corp., a ew subsidiary of Bumble Bee Seaoods, Inc. Installation of a modern una cannery will commence immeiately and is scheduled for completion in April 1962. The total expenditure will be in excess of $1,500,000.

Taiyo-California, Inc. will also have n interest in the new company. Tuna or the operation will be supplied by essels fishing in the Atlantic.

The joint announcement said the urchase of the property implements ne planned expansion of Bumble Bee eafoods which was announced when ne Company was merged into Castle Cooke last May. It also underscores astle & Cooke's intention to seek rowth opportunities in the food inustry.

Mr. MacNaughton pointed out that umble Bee registered a 20 per cent ncrease in sales during the past fiscal ear and sales and earnings for the rst four months of the current fiscal ear exceeded those of the same prior eriod.

The freezing and storage needs of ood producers in the Cambridge area ill continue to be served by the new ompany. It is contemplated that presnt employees of the plant will be reained and that operation of the cannery will require an additional 150 employees.

According to Mr. Sandoz, the new cannery is strategically located to participate in the growing Atlantic tuna fishery and to serve Bumble Bee's markets in the east. The Maryland operation will not diminish production schedules at the company's present canneries in Astoria and Honolulu.

John Supple, who has been with the company since 1952, has been appointed manager of the Maryland plant and has moved to Cambridge from Astoria to assume his new duties. He has had extensive experience in Bumble Bee's production operations in Oregon, Hawaii and Alaska.

O. D. Howell and L. W. Olp will also move to Cambridge to be active in the management of the new plant. Both of these men have had many years of experience with Bumble Bee Seafoods, Inc.

## Artificial Spawning Aids Jones Creek Pink Recovery

Pink salmon can be raised successfully in artificial spawning grounds. This has been demonstrated at the Jones Creek hatchery in the Fraser valley, which has been operated for the past several years by the Canadian department of fisheries.

This year, 4,000 spawners have returned to Jones Creek, compared with 2,604 in the cycle year of 1959. There has been a steady increase since the artificial spawning channel was first established to determine whether hydro-electric development on the upper reaches of the creek would destroy the natural spawning area.

In 1955, a total of 400 spawners laid their eggs in the new gravel bottomed channel, compared with a normal return of 6,000 before the hydro project was undertaken. The 400 Pinks laid an estimated 428,000 eggs, of which 157,000 fry migrated next spring to the sea. Two years later the spawners numbered 1,456.

## Croker Heads Up Fisheries Society

Richard Croker, chief of the Marine Resources Branch, California Department of Fish & Game, is the new president of the American Fisheries Society. The Society, a nationwide group, is composed of more than 2000 scientists and conservationists devoted to the study and preservation of fisheries. Mr. Croker succeeds Kenneth Carlander of Iowa State College, retiring president.


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5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: 5,734.

Miller Freeman, Jr. Publisher

Sworn to and subscribed before me this 1st day of October, 1961.

Barbara M. Hampson,
Notary of the Public
San Francisco, California
(My commission expires February 18, 1962)

## Dr. Fuginaga's Shrimp Cultivation

● A few selected restaurants around Tokyo this year are providing their customers with artificially cultivated shrimp produced as a result of the researches of Dr. M. Fuginaga, former chief of the Scientific Research Division of the Japan Fishery Agency.

Dr. Fuginaga resigned from the Japan government service about 2 years ago to engage in the practical application of researches he had conducted privately over a number of years which encouraged him in the belief that shrimp could be spawned and the larval shrimp reared under artificial condition; and that the adult shrimp could then be harvested with certainty of supply and under controlled delivery volume.

Several of the principal fishery companies of Japan organized a company to support Dr. Fuginaga's researches and to finance their application on an industrial basis.

The first actual commercial use of shrimp produced by this project is occurring this year. The volume as yet is not large, and the shrimp are available only in a few specially selected restaurants where careful observations are made as to their quality and consumer acceptance. It is expected that within about 2 years the Fuginaga artificially cultured shrimp will make a major contribution to Japan's supply of fresh shrimp.

In at least one of the restaurants where *Pacific Fisherman's* reporter ate the shrimp this fall they were handled live up to the moment that the order was placed. The shrimp are harvested and kept and shipped to Tokyo in salt water and are delivered to the restaurants alive in tanks.

The shrimp are moderate in size, but are particularly marked by their coloration. The meat is pure white, but it is overlaid at the joints with a red coloration resembling that which is found in king crab or spiney lobsters. In short, the cultivated shrimp are superior in appearance to many that are offered in the Tokyo restaurants, although it is presumed that similar shrimp of identical original species also are available.

## Star-Kist Growth Brings Promotions, Transfers

Expansion of Star-Kist Foods operations both at home and abroad has brought about a number of recent promotions, moves and additions to the far-flung staff. Nick F. Trutanic, vice-president, headquartered on Terminal Island, California, announced the following recent changes:

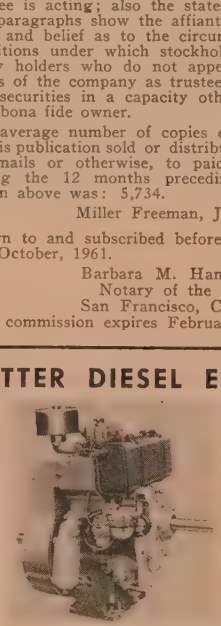
At Tema, Ghana, West Africa, Leland Links, formerly assistant plant superintendent at Coishco, Peru, is now shoreside manager of the new Star-Kist International S.A. operation;

Claude Paradowski is assistant to Mr. Links at Tema;

Ted Lucich, well-known purse seine skipper, is manager of vessel operations. Vessels fishing for Star-Kist off Ghana are the *Freedom, May Queen* and *Columbia*.

At Star-Kist Peruana, Peru, under the general direction of George Gligo, Carlos Sotomayor is sales manager;

**PETTER DIESEL ENGINES AND GENERATING SETS**



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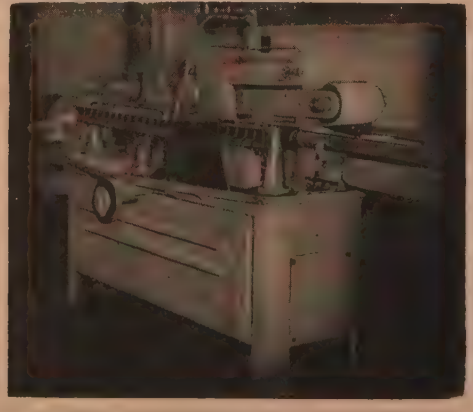

# The PAK-SHAPER

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**Introduction of the PAK-SHAPER in 1949 developed in tuna canning a greater mechanization than had come about in 30 years of previous growth. Subsequent experience has proved its value to the industry. A large percentage of major tuna operators now employ the PAK-SHAPER.**

**The PAK-FORMER, designed exclusively for Chunk and Grated Style Pack, is now available to the tuna industry under similar terms as the PAK-SHAPER.**

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## E. H. CARRUTHERS CO.

**P. O. Box 1322, Warrenton, Oregon**

Louis LaMont is plant manager at Coishco, Andrew Bornacich is staff assistant in Lima; and Vince Marich, engineer, is completing plant expansions and changes in preparation for the heavy production season at Coishco. Mr. Marich transferred to Coishco from Star-Kist Caribe, Mayaguez, Puerto Rico.

At Terminal Island headquarters, Bob Ferren, formerly Pacific Coast sales manager National Can Co. and prior to that customer research representative to California fish canners, is newly-appointed project coordinator.

Edward Ryan has been promoted to staff assistant to Robert K. Pedersen, production manager;

Lucien Richards, formerly with Continental Can Co., is now operations department staff assistant on Terminal Island;

Ernie Clarke is newly-appointed industrial engineer;

Joe M. Bogdanovich, general superintendent on Terminal Island, will spend the next few months at Star-Kist Caribe, Mayaguez, Puerto Rico, on a special assignment assisting Manager Tom Crump.

## Cattle Fattened Faster With Fish Meal in Diet

Interesting results of experiments being conducted at University of British Columbia in developing cattle feed with fish meal content are reported.

Dr. A. J. Wood, professor of animal husbandry and director of the Central Animals Depot, has directed a series of tests on the fattening of beef cattle on rations containing no roughage.

There is nothing particularly new in non-roughage rations for cattle, but the work of Dr. Wood is notable for the high rate of gain being achieved and the use of fish meal in the ration.

Feed lots have gained 4 lbs. daily, through a 90-day test, with a gain of one pound per four-pound feed intake, at 14 cents per pound of gain. The ration is rolled wheat—1800 lbs.; fish meal 69 lbs.; dicalcium phosphate, 20 lbs.; iodized salt 20 lbs.; dehydrated alfalfa to make up the weight to a ton, and 32,000,000 units of Vitamin A.

The significant fact is that Dr. Wood appears to be getting much better results than those reported from other similar experiments. Fish meal has been used because Dr. Wood finds it more economical than other sources. Rate of utilization by the animal of the protein in fish meal runs over 70%, against 68% for soybean meal and 43% for meat scraps, according to Dr. Wood.

# Southern California Receipts

| | Albacore | Bluefin | Skipjack | Yellowfin | Bonito, etc. | Total |
|---|---|---|---|---|---|---|
| San Pedro | 18,717 | 9,995 | 18,552 | 86,563 | 2,074 | 135,931 |
| San Diego | 2,937 | 151 | 9,702 | 16,611 | .. | 29,401 |
| **Total 1961 through Oct. 14** | 21,654 | 10,146 | 28,254 | 103,174 | 2,074 | 165,332 |
| Total 1960 | 27,123 | 5,147 | 30,809 | 99,757 | 136 | 162,972 |
| Total 1959 | 21,678 | 7,456 | 61,528 | 82,020 | 553 | 173,235 |

# So. Calif. Domestic Tuna Deliveries

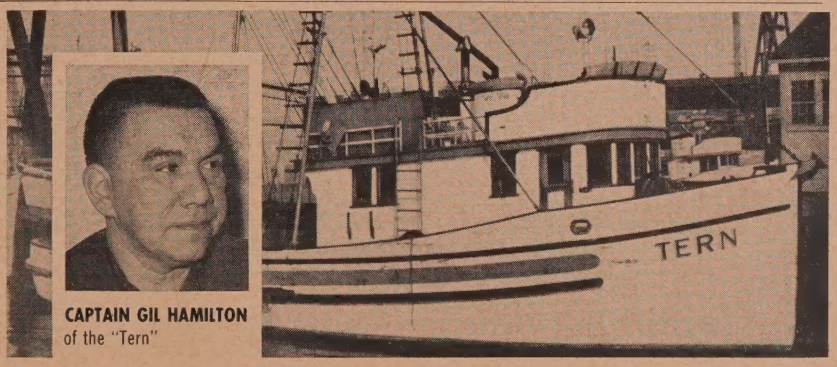
Cumulative totals for 1961 through Oct. 14, in tons, as reported by U.S. Market News Service

| | Albacore | Bluefin | Skipjack | Yellowfin | Bonito, etc. | Total |
|---|---|---|---|---|---|---|
| Clippers and Albacore Fleet | 11,987 | ... | 7,989 | 10,975 | ... | 30,951 |
| Purse Seiners | 925 | 9,841 | 15,714 | 74,203 | 2,074 | 102,757 |
| **Total 1961 through Oct. 14** | 12,912 | 9,841 | 23,703 | 85,178 | 2,074 | 133,708 |
| Total 1960 | 14,728 | 5,004 | 21,894 | 76,434 | 136 | 118,196 |
| Total 1959 | 13,226 | 7,233 | 53,050 | 46,451 | 553 | 120,513 |

# California Imports of Frozen Tuna

Cumulative data in tons for 1961 through Oct. 14, and for other years to the nearest comparable data. Data from U. S. Market News Service.

| | Albacore | Skipjack | Yellowfin | Unclassified | Total |
|---|---|---|---|---|---|
| San Francisco | 2,134 | 32 | 6,821 | 299 | 9,286 |
| San Pedro | 9,083 | 3,062 | 15,025 | 267 | 27,437 |
| San Diego | 762 | 1,489 | 2,971 | 38 | 5,260 |
| **Total to Oct. 14** | 11,979 | 4,583 | 24,817 | 604 | 41,983 |
| 1960 | 14,491 | 9,175 | 31,479 | 560 | 55,705 |
| 1959 | 9,957 | 8,747 | 43,613 | 223 | 62,540 |




**CAPTAIN GIL HAMILTON**
of the "Tern"


**"Sea King Filament Nylon Netting is hard to beat."**

"In fact," says Gil Hamilton, owner of the Salmon Purse Seiner "Tern," "I think it is the best. I have used Sea King Filament Nylon Netting for the past five years in Southeastern Alaska, where the water is the roughest and the netting must be right."

You, too, will get these advantages in Sea King Filament NYLON netting — the finest netting ever developed — because of an exclusive "liquiplating" process which makes these advantages possible. Made of duPont NYLON, it's lighter and stronger size for size; easier to handle; knot slippage eliminated; greater uniformity of mesh; cuts replacement cost.

**For the finest netting ever developed . . . insist on . . . Sea King Filament NYLON, NYCOT and Sea King cotton netting.**

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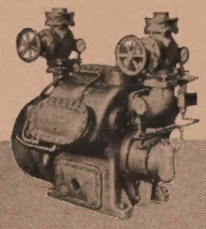
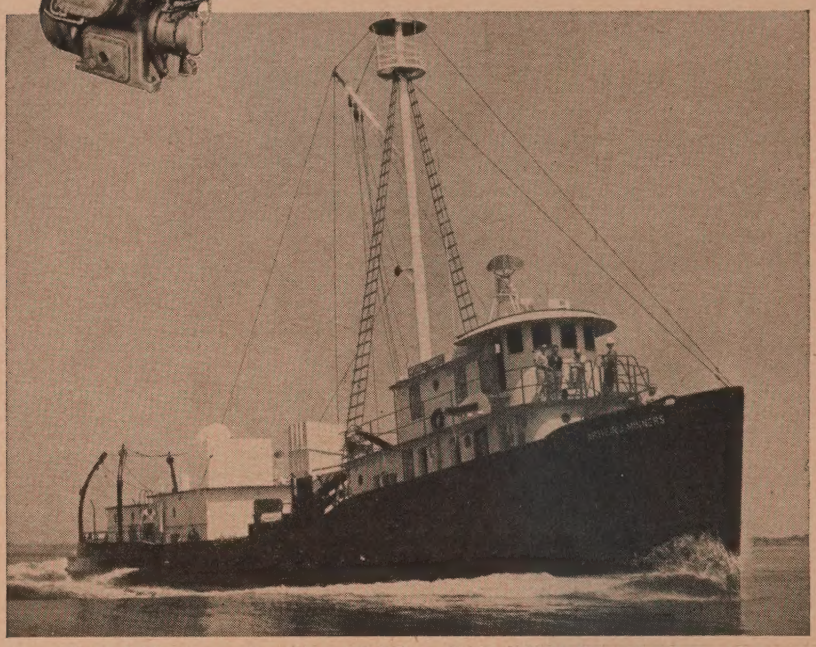
# Can you imagine 1,000,000 menhaden in your hold without refrigeration?



A view of a typical Vilter VMC ammonia compressor of the type used in the A. J. Minners. Vilter VMC compressors supply maximum capacity in a minimum of space.



The A. J. Minners owned and operated by Larry Clarke of Smith Research and Development Company was built by J. F. Bellinger & Sons Boat Yard of Jacksonville, Florida. The A. J. Minners fishes for menhaden and its refrigerated holds have a capacity of 1,000,000 fish.

Top profits require prime fish at point of delivery for proper processing. And that's why Vilter was selected to provide the refrigeration for the menhaden vessel, *A. J. Minners,* with a capacity of 1,000,000 fish in her holds.

The Vilter refrigeration system for *A. J. Minners* includes a vertical single pass water chiller divided into four sections. Four water pumps take water from the four holds, pass it through the respective section in the chiller and then spray it back into its own hold. The four section chiller and four separate pumps were selected to control the balance of the ship. The compressor is an 8-cylinder VMC ammonia unit direct connected to a 6-cylinder diesel. A Vilter condenser, receiver and float complete the installation.

To prove the Vilter design and refrigeration equipment, a Vilter representative accompanied the *A. J. Minners* on an early cruise. The refrigeration equipment quickly brought the water down from 60° F. to 37° F. and the total catch of 400,000 fish was held at this temperature. Fish arrived at port cold and firm and less than 2% were broken.

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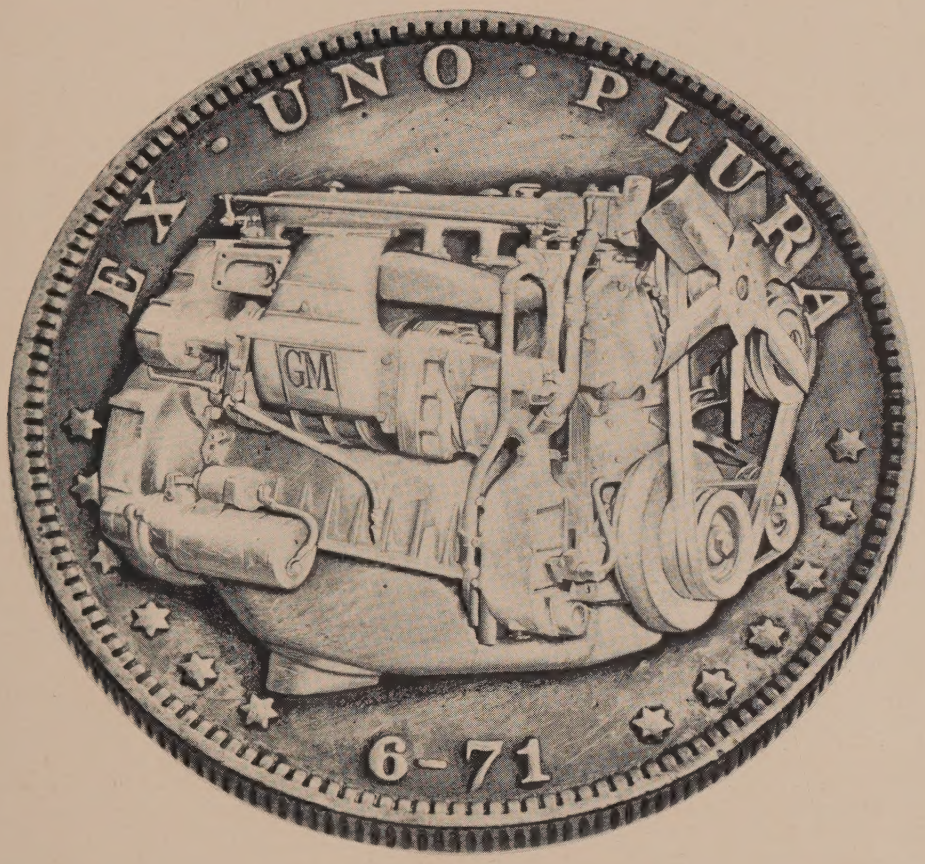


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SERIES 53 & 71 ENGINES

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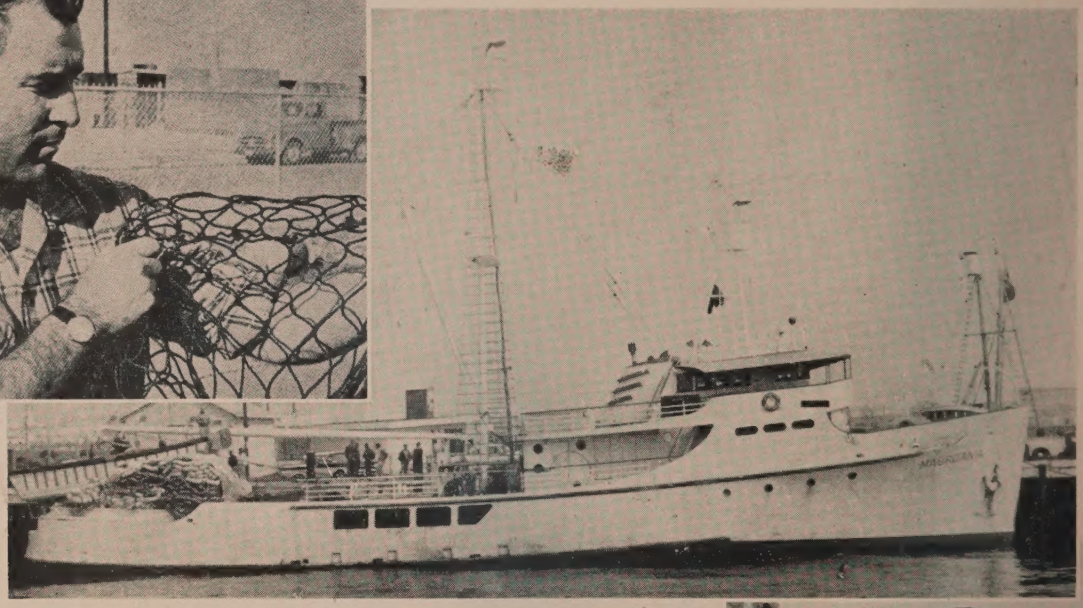
# "TRILOCK

## *is all I expected — and more"*

**says NICK MOSICH Jr., skipper of the newly-converted tuna purse-seiner Mauritania.**



"I never had a net work more smoothly than my new Trilock seine", says Capt. Mosich. "We had no fish tangling problems whatever, even with the smaller fish.

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TRILOCK (registered trade name) is a new type all-nylon fish net, designed and proved to be stronger and smoother. TRILOCK reduces friction, works faster and easier in the equipment. Its special construction substantially reduces porpoise and shark problems.

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Young, progressive Nick Mosich (left) teams with old-hand Jack Borcich (right) on the 350-ton Mauritania, owned by Nick Mosich Sr. and Jr., John and Steve Vilicich and Manuel Cardoza. Her net was hung in our complete yard, with power-block and fork-lift trucks.

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